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A BLOOD SUGAR TOLERANCE TEST *

N. W. JANNEY, M.D., PH.D.

AND

V. I. ISAACSON, B.S.

NEW YORK

There is need both of a better general understanding of sugar tolerance and of a reliable sugar tolerance test. The customary clinical method has been to give the patient by mouth 100 gm. of glucose dissolved in more or less water and to determine the presence and amount of a possibly resulting glycosuria. This rough procedure is very uncertain. It has been justly criticized by Allen,[1] and also by Hulton and Taylor[2] on the basis of experimental evidence. These investigators called attention to the fact that there is no actual upper limit to sugar tolerance so far as normal individuals are concerned, as they are able to tolerate as much glucose as they can retain. Therefore it is argued that increased tolerance must be nonexistent. This objection has cast doubt on the whole conception of increased sugar tolerance. On the contrary, a *decreased* power of assimilation of glucose does certainly occur as, for example, in diabetes. There is, of course, no question as to the value of sugar tolerance in these conditions. A second objection to the usual clinical test may be raised, namely, that oral administration of glucose is uncertain, as variations in the alimental absorption cause discrepancies in the results. This is an obvious possibility, as rate and concentration at which the sugar enters the circulation are controlling factors. Still other objections may be raised. One hundred gm. of glucose have been arbitrarily administered to persons weighing 100 or 200 pounds. The amount of water given with the glucose has never been properly standardized. These factors very probably influence the results of the tolerance tests.

Again, it must be remembered that faulty inference as to the sugar tolerance is liable to be made when the urine alone is tested, for glycosuria may occur without elevation of the blood sugar. Moreover, no glycosuria may ensue on marked elevation of the blood sugar. Thus both incipient diabetes mellitus and renal diabetes are characterized by glycosuria in the tolerance test. In renal diabetes there is, however, an inconsequential rise in the blood sugar, while in true diabetes the opposite is the case. Hyperglycemia without glycosuria, such as occurs in chronic interstitial nephritis cases tested for their blood sugar tolerance, may lead to the wrong conclusion, that the tolerance is increased when the actual condition is sugar retention.

The subcutaneous and intravenous methods have been used in an attempt to avoid these disturbing influences — the former, however, with no success.

Wilder and Sansum[3] and Sansum and Woodyatt[4] have, however, worked out what is undoubtedly the most accurate method as yet devised for testing the urinary glucose tolerance. By using intravenous injections and carefully controlling the rate of glucose supply to the blood with special apparatus, they obtained results that checked well, and concluded that the intravenous injection of 0.8 gm. of glucose per kilogram of body weight per hour represented the upper limit of tolerance of normal persons. When more sugar is injected, glucose appears in the urine. Sansum and Woodyatt, in a careful critique, very properly call attention to the inaccuracies of the usual clinical methods of tolerance testing. But serious practical objections may be made against their own method. Expensive apparatus and a venous puncture are required. This will always stand in the way of its general adoption for clinical purposes.

It remained desirable, therefore, to devise a tolerance test that would be more convenient and sufficiently accurate. We have consequently returned to the study of oral administration of sugar. The possibility of delayed or defective absorption from the alimentary canal had first to be controlled. This factor has been supposed by various authors greatly to influence the results of tolerance tests. Several years ago, during a previous investigation of sugar formation from protein in diabetes, it became necessary to make some experiments concerning this point. Much less variation was found in the absorption rate, even of solids, than had been supposed to exist. When various mechanical factors were controlled, absorption took place at such a regular pace that curves representing the nitrogen and, indeed, the sugar excretion following protein ingestion showed a remarkable similarity in several experiments. Reference may be made to the original articles[5] for details. Mendel and his collaborators[6] have come to the same conclusion in elaborate studies which cannot be discussed here. Water soluble substances are absorbed at a still more uniform rate. From the results of these physiologic experiments, it appeared very likely that pure glucose

* From the Montefiore Home and Hospital.

* Read before the Society for Experimental Biology and Medicine, New York, Nov. 21, 1917.

1. Allen, F. M.: Glycosuria and Diabetes, Cambridge, 1913.
2. Hulton, F., and Taylor, A. E.: Jour. Biol. Chem., 1916, **25**, 175.
3. Wilder, R. M., and Sansum, W. D.: d-Glucose Tolerance in Health and Disease, Arch. Int. Med., February, 1917, p. 311.
4. Sansum, W. D., and Woodyatt, R. T.: Jour. Biol. Chem., 1916, **24**, 343.
5. Janney, N. W., and Csonka, F. A.: Jour. Biol. Chem., 1915, **22**, 203. Janney, N. W.: Jour. Biol. Chem., 1915, **20**, 321. Janney, N. W., and Blatherwick, N. R.: Jour. Biol. Chem., 1915, **23**, 77.
6. Mendel, L. B., and Fine, M. S.: Jour. Biol. Chem., 1911-1912, **10**, 303, 339, 345; 1912, **11**, 1, 5. Mendel, L. B., and Lewis, R. C.: Jour. Biol. Chem., 1913-1914, **16**, 19, 37, 55.

solutions of constant concentration given per kilogram of body weight would be absorbed even by different persons at a fairly uniform rate. It is obviously necessary to study the rate of alimentary absorption of sugar. Blood sugar estimations enable us to do this. It is known that the blood sugar is elevated when carbohydrates are ingested. When the factors mentioned below were observed, it was found that following glucose ingestion normal individuals uniformly reacted with a definite degree of hyperglycemia. Thus, by observing the blood sugar at short intervals, it was possible to map out a normal blood sugar curve. This has been found to be so constant, both by ourselves and by others,[7] that a very long series of controls was not indicated.

The necessary factors requiring observance are:

1. To avoid the influence of food, the subject must be fasting at the time of the test. This hunger period is fifteen hours in our technic.

2. The blood sugar level must be known before the glucose is fed, since hyperglycemic and hypoglycemic states markedly affect the blood sugar tolerance. (See experiments in this article.)

3. The blood sugar assimilation curve must express the velocity of the hyperglycemic response to sugar feeding. This is obtained by the ingestion of a definite weight of sugar per kilogram of body weight of the subject. The sugar solution must have a definite concentration. The necessary time factor is supplied by estimating the degree of the resulting hyperglycemia at fixed intervals.

4. The glucose used must be pure, as we have found in former experiments that glycosuria may be caused or increased as a result of toxic substances ingested with the sugar.

5. Exercise should be limited during the time of the test, as it has been demonstrated both clinically and experimentally that bodily movement usually increases glucose combustion. This was accomplished in our series of experiments by confining dogs to cages and obliging patients to sit quietly during the test periods.

6. The rate of alimental absorption must be controlled. This has already been discussed. With observance of these factors, the blood sugar tolerance test as performed by us is as follows:

TECHNIC OF THE BLOOD SUGAR TOLERANCE TEST

The patient fasts from 7 p. m. one day until the test is completed the following morning. Meantime the patient's weight is ascertained and the glucose drink prepared by dissolving in water a weighed amount of glucose equivalent to 1.75 gm. of the sugar for every kilogram (2⅕ pounds) of this weight. For each gram of glucose, 2.5 c.c. of water are used, that is, 10 c.c. of water for 4 gm. of glucose. The juice of one lemon may be added for flavoring. At an early morning hour the blood sugar is determined. As soon as convenient thereafter, the patient drinks the previously prepared cooled glucose solution. The mouth may, if desired, be washed out with a swallow of water reserved from the measured quantity for this purpose. Exactly one hour after the sugar drink has been taken, the blood is withdrawn for a second sugar determination, and a third time one hour later, that is, two hours after the sugar drink has been taken. If the tolerance is normal, the difference between this third estimation and the fasting value seldom exceeds 0.01 per cent. (Table 1).

The determination made at the end of the first hour is not strictly necessary, but is helpful in determining the height of the sugar curve. If the tolerance is decreased, the determination made at the end of two hours will detect persistent hyperglycemia, the extent of which may, if desired, be ascertained by further hourly determinations. The presence of hypoglycemia or hyperglycemia is, of course, indicated by the determination of the fasting sugar level, which consequently enhances the value of the test. Up to the present it has been our custom to collect a twenty-four hour specimen of urine, beginning at the time of ingestion of glucose and determining the presence and amount of glycosuria. This yields additional information, and is corroborative when the subject's tolerance is diminished. It should be noted that not one of the entire list of normal persons whose curves appear in the protocols showed any glycosuria on the standard amount of sugar fed. The blood test is much more delicate and gives more information than the urinary.

TABLE 1.—BLOOD SUGAR TOLERANCE TESTS ON NORMAL INDIVIDUALS*

Control	Before Glucose Ingestion	After Glucose Ingestion				Urinary Glucose
		½ Hr.	1 Hr.	1½ Hr.	2 Hr.	
	Mg.	Mg.	Mg.	Mg.	Mg.	Gm.
1	90	...	100	92	...	0
2	88	...	108	...	85	0
3	90	...	145	...	89	0
4	91	...	92	94	...	0
5	88	...	118	...	104	0
6	102	...	125	100	...	0
7	99	116	105	...	...	0
8	102	161	97	...	...	0
9	87	127	104	110	...	0
10	117	140	135	118	...	0
11	96	123	124	124	106	0
12†	120	132	103	100	...	0
13	112	143	114	...	...	0
14	101	162	...	115	110	0
15	97	126	117	114	...	0
16	105	125	120	106	...	0
17†	120	144	137	126	...	0
18	100	...	130	...	100	0
19	95	...	120	...	96	0

* We are indebted to Dr. Fergus Butler of the Metabolism Clinic, New York Post-Graduate Medical School and Hospital, for several blood sugar tests.
† High blood sugar but a normal curve.

The blood sugar tolerance test requires at least two or more blood samples taken at short intervals. We have found it inadvisable, therefore, to use any method requiring venous puncture, which demands considerable technical skill for frequent observations in the same patient, and have accordingly adopted Epstein's micromodification of the Lewis-Benedict method, as shown above. The technic is simple and has the advantage of requiring only a few drops of blood, taken, as in a blood count, from the finger tip. In an extensive experience we have been unable to obtain the extreme accuracy claimed for this technic. However, the results are still quite satisfactory clinically, as the error in our hands has not exceeded 7 per cent. and, indeed, rarely 4 per cent. Duplicate determinations were made in every case in the work reported in this article. They agree excellently. Even a 7 per cent. error does not detract from the clinical value of a blood sugar estimation; for whether a given result is, for example, 0.090 or 0.096 per cent., has no very

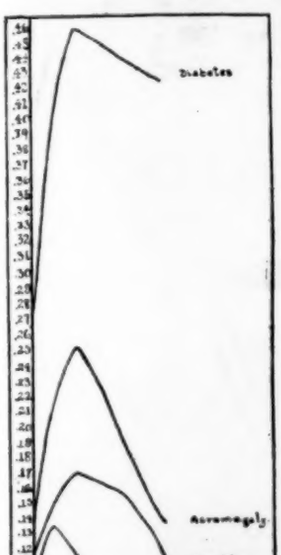
7. Bang, I.: Biochem. Ztschr., 1913, **56**, 300. Jacobsen, A. T. B.: Biochem. Ztschr., 1913, **56**, 471. Johnson-Blohm, G.: Läkaref., Förh., Upsala, 1914-1915, N. Y. Följd., **20**, 331. Hopkins, A. H.: Am. Jour. Med. Sc., 1915, **149**, 254. Cummings, R., and Piness, G.: Arch. Int. Med., 1917, **19**, 777.

serious significance. The technic is easily acquired even by one unaccustomed to delicate chemical procedures. We have found it advisable to prepare pure 0.10 and 0.20 per cent. glucose solutions at intervals, and to run blank determinations on these in order to detect imperfections in the reagents used, as well as to determine whether the standard color tubes are correct.

The hyperglycemic response to the tolerance test gives from 0.12 to 0.14 per cent. glucose in most normal cases, the normal fasting level of 0.10 per cent. being reattained in an hour and a half, or two hours at most. This has been observed in isolated cases by others.[8] In morbid conditions three, four or even five hours may be required.[9]

INDICATIONS

Obviously, all the usual indications for blood sugar estimations are here included. Such are diabetes, nephritis and disturbances of the various ductless glands. It is the belief of many that a sugar tolerance test is frequently indicated in diabetes. In most cases, however, we have found this test, and indeed the use of any tolerance test necessitating the use of glucose, to be usually of more scientific interest in diabetes than of practical value. The blood sugar curve is greatly prolonged in this disease, but this information is superfluous on account of the presence of other symptoms. Vastly more important is it, however, to ascertain how the diabetic reacts to a diet containing varying proportions of carbohydrate, fat and protein than it is to determine his tolerance to sugar, a substance he usually cannot be permitted to include in his food. When, however, it comes to the very mild cases which only occasionally show glycosuria on a full diet, the tolerance test is most useful, for one of the first symptoms is a prolongation of the blood sugar curve with hyperglycemia. It is probable that the test will become of value in differentiating renal diabetes from diabetes mellitus. A case of renal diabetes showed a normal blood sugar value and a typical tolerance curve, the highest point reached being 0.12 per cent., yet very definite glycosuria was present. Thus increased renal permeability without hyperglycemia may coexist.



Blood sugar tolerance in diabetes, acromegaly and nephritis, as compared with the normal. The horizontal line represents the hours, the vertical line indicates the percentage of blood sugar. Curves in cretinism and exophthalmic goiter are in course of publication.

Aside from the tolerance test, a study of the blood sugar in diabetes is yielding results of increasing interest and value. In glycosuric individuals the degree of hyperglycemia is to a certain extent a measure of the severity of the case in question. In sugar-free cases a high blood sugar approaching 0.17 per cent., the level at which glycosuria usually begins, indicates the necessity of fasting or further reduction in the diet. On the other hand, a fall of the blood sugar to the normal level in a diabetic formerly showing hyperglycemia indicates that the tolerance has increased. A trial addition of carbohydrate food may now be made. There is, however, a group of diabetic cases which show hyperglycemia above 0.17 per cent. even when the urine is sugar-free and renal involvement can be excluded.[10]

In chronic interstitial nephritis there is a tendency for the blood sugar to remain at the upper level of the normal, or higher. This is usually a retention phenomenon. In general, blood sugar values higher than the normal, accompanied by a prolonged or delayed blood sugar curve with the absence of glycosuria, are indicative of nephritis.[11]

TABLE 2.—BLOOD SUGAR TOLERANCE ESTIMATIONS IN VARIOUS CLINICAL CONDITIONS

Case	Treatment	Before Glucose Ingestion	After Glucose Ingestion					Urinary Glucose
			1 Hr.	2 Hr.	3 Hr.	4 Hr.	5 Hr.	
		Mg.	Mg.	Mg.	Mg.	Mg.	Mg.	Gm.
Y. K.—Cretin	Before	65	100	85	85	75	65	
	After	104	164	116	106			
M. S.—Myxedema	.....	96	...	115	88			
A. S.—Hypothyroidism	.....	103	...	130	125	...	...	Ft. tr.
B. G.—Dysthyroidism	.....	110	180	150	120			
E. T.—Exophthalmic goiter	Before	100	184	...	105	92	...	0.75
	After	70	107	72	...	...	...	0
J. W.—Exophthalmic goiter	Before	99	192	151	120	112	...	6.13
	After	122	224	164	130	...	...	4.10
J. H.—Exophthalmic goiter	Before	70	122	117	91	87	...	4.34
	After	98	138	114	91	...	...	0
M. F.—Exophthalmic goiter	.....	70	115	107	91	87	74	0
M. S.—Exophthalmic goiter	.....	88	110	108	86	...	...	Ft. tr.
J. D.—Exophthalmic goiter	.....	108	181	130	110			
R. S.—Acromegaly	.....	134	254	197	140	...	...	0
I. R.—Acromegaly; muscular dystrophy	.....	68	127	95	90	63	...	0
J. B.—Chronic interstitial nephritis	.....	116	172	160	112	...	...	0
R. F.—Chronic diffuse nephritis	.....	112	186	139	90	...	...	0
M. R.—Diabetes	.....	269	463	445	428	...	...	8.00
K. B.—Incipient diabetes	.....	110	...	150	...	...	...	0

The relation of the blood sugar to the endocrine conditions has been studied by us for some time past. It was first found that thyroidectomy is followed by hypoglycemia,[12] which is therefore to be ascribed to a hypofunctional condition of the endocrine glands. Hypoglycemia has been detected in cretinism, myxedema, Addison's disease[13] and hypophysial dystrophy.[14] We have found it constantly present in muscular dystrophy.[15] But few studies have been made of the blood sugar tolerance in these conditions. We

8. Graham, G.: Jour. Physiol., 1915, **50**, 285. Frank, E.: Ztschr. f. physiol. Chem., 1910, **70**, 291.

9. The directions given above have been followed in obtaining the results recorded in this article. The technic recently described by Hamman and Hirschmann (see end of article) has the advantage of using less glucose than in our experiments but can be criticized as the water and glucose are not standardized to the unit weight of the individual. The following modification is therefore suggested for future work: to use 1.5 gm. glucose per kilogram of patient's body weight. For each gram of glucose to use 3 c.c. of water. The other directions to remain as described in the text.

10. Personal observations of Janney. See also Mosenthal, H. O., and Lewis, D. S.: Johns Hopkins Med. Bull., 1917, **28**, 187.

11. Similar observations have been made by Hopkins.

12. Janney, N. W., and Isaacson, V. I.: Proc. Soc. Exper. Biol. and Med., 1917, **14**, 99.

13. Porges, O.: Ztschr. f. klin. Med., 1909-1910, **69**, 341. Sakoguchi, K.; Tatsuya, K., and Kinyosai, O.: Mitt. a. d. med. Fak. d. k. Univ. zu Tokyo, 1915, **14**, 111. Janney: Unreported case.

14. Falta, W.: Ductless Glandular Diseases, Philadelphia, 1916, p. 291.

15. Janney, N. W.; Goodhart, S. P., and Isaacson, V. I.: The Endocrine Origin of Muscular Dystrophy, Arch. Int. Med., February, 1918, p. 188.

have detected a delayed blood sugar curve in cretinism, myxedema, acromegaly and muscular dystrophy. It has also been recorded by others for acromegaly.[16] It is to be expected, therefore, where other hypoglandular conditions exist. This is a very interesting observation, for it would naturally be expected that the lower the blood sugar level the more quickly the ingested sugar would be removed from the blood. This tendency to a delayed tolerance curve may be taken as an indication that carbohydrate metabolism is disturbed in hypofunctional activity of the endocrine organs. A hyperglycemic response and a delayed blood sugar curve have been observed by us in all cases of hyperthyroidism and exophthalmic goiter tested. This evidence of imperfect carbohydrate assimilation suggests that dysfunction rather than hyperfunction of the thyroid is the underlying condition in exophthalmic goiter. The delayed curve is much more valuable than hyperglycemia in this condition, for certain cases of hyperthyroidism exhibit the former in the tolerance test, yet the fasting blood sugar is normal or subnormal.

The test here suggested unfortunately is of no aid in the differential diagnosis of endocrine diseases in the absence of specific clinical symptoms, for the disturbances of carbohydrate metabolism detected by it are caused by various dysfunctionating ductless glands.

In the first part of the article it was mentioned, in regard to an upper limit of glucose tolerance, that such a condition has been doubted to exist, since normal persons could take increasing amounts of glucose without the appearance of glycosuria. A few grams of sugar, however, usually do appear in the urine of such individuals when very large quantities of glucose are ingested. Increased sugar tolerance with absence of glycosuria has been frequently reported in hypofunctional endocrine disturbances, such as hypophysial dystrophy, in which condition even 500 gm. of glucose have failed to cause glycosuria. The blood sugar tolerance test affords interesting insight into the nature of the increased tolerance thus observed, for it is here that we detected hypoglycemia, which in all probability is the cause of the increased tolerance thus observed. Sugar tolerance tests[17] performed by us on thyroidectomized dogs never showed as great a rise in the blood sugar following ingestion of glucose as did normal animals similarly examined. It is evident from this that more glucose can be assimilated in the case of the athyroid animals without causing glycosuria, and that this is probably due to the fasting low blood sugar level in these animals. As already mentioned, there is a tendency to a delayed sugar curve in these conditions; but this tendency is never sufficient to produce hyperglycemia and glycosuria, the hypoglycemia being the controlling factor

CONTRAINDICATIONS TO THE BLOOD SUGAR TOLERANCE TEST

Contraindications are irritable stomach in neurotic conditions and grave gastro-enteric diseases when delayed absorption might interfere with the results. Gastrectasia, atrophy of the mucosa, extensive ulcerations, or adhesions preventing normal peristalsis can conceivably affect the absorption rate and invalidate the test.

16. Goetsch, E.: Cushing, H., and Jacobson, C.: Bull. Johns Hopkins Hosp., 1911, **22**, 165.
17. Janney and Isaacson (Footnote 12). Janney, N. W., and Isaacson, V. I.: The Blood Sugar in Thyroid and Other Endocrine Diseases, in course of publication.

ADDITIONAL NOTE

The blood sugar tolerance test has been in use at the Montefiore Home and Hospital for the past two years. It was first discussed in a paper[18] read before the Society for Experimental Biology and Medicine, Feb. 21, 1917. Dr. Hamman has kindly called our attention to a preliminary report[18] of his work with Hirschmann on the same subject, read May 10, 1916, before the Association of American Physicians, appearing in March, 1917. We regret that these important data came to our notice after this paper had been written and cannot be conveniently incorporated in the text. Our detailed technic was described in this paper[19] read before the Society for Experimental Biology and Medicine, Nov. 21, 1917.

Nov. 17, 1917, a splendid article by Hamman and Hirschmann[20] appeared, reporting practically the same results as obtained by us.

33 East Sixty-Third Street.

18. Hamman, Louis, and Hirschmann, I. I.: Proc. Assn. Am. Phys., 1916, **21**.
19. Janney, N. W., and Isaacson, V. I.: Proc. Soc. Exper. Biol. and Med., 1917, **15**, 15.
20. Hamman, Louis, and Hirschmann, I. I.: Studies on Blood Sugar, Arch. Int. Med., November, 1917, p. 761.

THE TRANSPLANTATION OF BONE

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During recent years the science of bone transplantation has been occupying the attention of orthopedic surgeons to a steadily increasing degree. While the earlier operations were pure experiments attended by success or failure, depending on whether the surgeon chanced to employ the principles that are essential to success, the mass of evidence now at hand as the result of experimentation on animals has clearly outlined these principles and placed the clinical employment of the procedure on a sound scientific basis.

Fig. 1.—Low power photomicrograph taken at the medullary edge of an autogenous bone graft, three weeks after operation. It shows the union of the graft to the cancellous medullary bone; the invasion of the graft by the proliferating osteoblasts, large cavities being formed in its substance; the laying down of new bone on the walls of these cavities; the disappearance of the cells from the lacunae, and the reestablishment of the circulation as seen in the large haversian canal at the upper edge.

This is most fortunate at the present moment when thousands of soldiers are returning to our hospitals with injuries to the bones that urgently call for radical operative treatment before the men can be fitted to return to useful civilian life.

CHANGES IN TRANSPLANTED BONE

The experiments on which we have based the principles that have guided our operative work have been

Fig. 2.—High power photomicrograph of one of the cavities shown in Figure 1. It shows the remains of dead cells in the lacunae, the active absorption of the dead bone by the osteoblasts, and the production of new bone in the older portions of the cavity.

spread over a period of the past four years, but with the exception of two short preliminary reports, the results have not yet been published. The conclusions deduced from these experiments may be thus outlined:

When a piece of living bone has been separated from its circulation and implanted elsewhere in the body of the same patient, the immediate result, as indicated in specimens recovered within a few days of the operation, is the coagulation of all cells and vessels to which the surrounding lymph is unable to percolate. This means the death of all the cells in the lacunae and most of those in the haversian canals. This is indicated by the immediate change in the staining property of the protoplasm and nucleus, and is later proved by the complete absorption of these structures after the lapse of from three to four weeks. On the surfaces of the graft and in the open mouths of the haversian canals, however, are many osteoblasts which are in a position to absorb nutriment from the bathing lymph, and these cells are capable of living and proliferating and of producing those changes that make the autogenous graft so valuable in reparative surgery. At the end of the first ten days after the implantation of the graft, the proliferation of these osteoblasts is well established on the periosteal and endosteal surfaces, and within a few days new bone formation can be plainly seen on these surfaces. In addition to forming new bone about the transplant, these proliferating osteoblasts proceed to attack the dead bone of the grafts and rapidly produce excavations about the edges which are at first filled with proliferating cells and later by new bone laid down by these cells on the walls of the excavation (Fig. 1).

While these changes are occurring on the surface, a reestablishment of the circulation has been taking place as the result of the ingrowth of new blood vessels into the mouths of the haversian canals. This proceeds with extraordinary rapidity, and in small, porous transplants is complete in approximately two weeks. Along with these blood vessels the osteoblasts spread inward from the surface, and at the end of three weeks the same changes that have been described on the surface are occurring within the substance of the bone. At first, cavities are excavated along the course of the haversian canals, not far below the surface of the bone. Later this cavity formation, which appears to be a solution of the bone by a secretion from the proliferating osteoblasts, spreads deeply into the transplant until ultimately the whole graft is permeated by blood vessels and osteoblasts that are occupied in the absorption of the dead bone. A few days after the formation of a cavity by these proliferating osteoblasts, the older cells return to their adult function of bone production, and soon the older part of the cavity becomes lined with a layer of new bone. This layer increases in thickness, and trabeculae develop from wall to wall until the whole cavity is filled with living cancellous tissue except in those areas in which the proliferating cells are continuing the work of excavation (Fig. 2).

The rapidity with which these changes occur depends on three factors: the size of the graft, its density, and the abundance of the supply of osteoblasts that survive on the surface. Thus in very thick grafts the absorption and replacement of the dead bone in the depths of the graft is necessarily slow, owing to the distance the new blood vessels and osteoblasts have to travel; and in such cases months must elapse before replacement can occur. The density of

Fig. 3.—Low power photomicrograph of two grafts placed end to end in the bed from which they had been cut. The right hand graft was boiled for ten minutes before being placed. Section made three weeks after operation. It shows that the changes following the implantation of autogenous and boiled grafts are in many respects identical. Thus, it shows the reestablishment of circulation in each, the union of each to the underlying cancellous bone, and the absorption and replacement of each by the activity of the invading osteoblasts.

the graft is important also, replacement being necessarily slow in hard, dense bone, such as the crest of the tibia, whereas it is very rapid in open, cancellous bone, such as a rib. This is largely due to the mechanical difference in the permeability of the two types of bone and to the difference in the amount of work to be performed to complete the replacement. Of the

greatest importance, however, is the abundance of the supply of living osteoblasts on the surface. Thus, if the transplant is cut in such a way that the endosteal and periosteal surfaces are undisturbed and exposed to a good supply of lymph, the changes described above occur with certainty and rapidity. If, on the other hand, the graft is cut in such a way that the periosteal and endosteal surfaces are removed, as occurs in making pegs and dowels, very little osteogenesis takes place from the graft itself, owing to the scarcity of the osteoblasts.

The foregoing facts have been established from a series of experiments in which bone of all types was transplanted into the muscles, without contact with living bone, thus eliminating the difficulty of deciding what changes can be ascribed to the living elements of the graft itself. When the experiment is changed so that the grafts are placed in good contact with living bone, the changes described occur much more rapidly, evidently because of the additional supply of osteoblasts arising from the bone in which the graft is embedded. The recognition of this fact suggested the possibility of using bone as a transplant in which all the elements were known to be dead. A series of experiments was performed, exactly similar to the preceding, except that the graft was boiled for twenty minutes before implantation. In the case of the implantations into the muscles, no

Fig. 4.—Very low power photomicrograph showing the plate (at the upper part of the section) the drill-hole in the plate, the pin, and a portion of the dog's radius. The solid union of the plate and pin to the radius, and of the plate to the pin, in the drill-hole, can be plainly seen.

change occurs for many months except the slow reestablishment of the circulation and an exceedingly slow absorption from the surfaces. Such grafts will persist for years in the muscles. When placed in good contact with living bone, however, changes very similar to those already described in so-called living autogenous grafts occur. Thus the graft very quickly becomes united to the living bone by new cancellous tissue laid down on its surface by the surrounding living osteoblasts; cavities appear on the surface as the result of the absorptive activity of these cells; and there is the same process of reestablishment of circulation with cavity formation within the graft and the laying down of new bone on the walls of these cavities as occurs in the autogenous grafts. The only difference that can be established by microscopic study of sections is that in the case of boiled bone all the changes are slowed, as one would naturally expect, from the absence of living elements on the surface of the graft. The rapidity of the changes in the boiled transplants depends on the same factors as in the case of autogenous bone. Thus large and dense grafts are replaced slowly, whereas porous bone, such as is found in the rib, is very rapidly absorbed and replaced by living bone. Again, if the boiled graft is placed in contact with very hard, dense, living bone, such as the chiseled surface of the crest of the tibia, the union of the graft is comparatively slow, and the replacement with living tissue occupies a long period, owing to the absence of an abundant supply of osteoblasts.

From these experiments can be deduced certain principles that are of the utmost importance in clinical surgery. The value of the bone graft is established beyond the shadow of a doubt, but the variations in the results that have attended its use must be attributed to variations in the employment of the principles that are essential to success. Whenever it has been decided that a bone graft is advisable, in cases in which it is necessary that living elements be transplanted with the graft, the autogenous graft is essential. Boiled bone will not suffice, as here the

Fig. 5.—Roentgenogram of fracture immediately after operation, taken through plaster of Paris. Boiled bone plate and bone screws employed.

Fig. 6.—Roentgenogram of same case after lapse of two months. Note commencing absorption of plate and screws.

Fig. 7.—Roentgenogram of same patient after lapse of one year.

replacement of the graft must depend on osteoblasts from elsewhere. Neither will heterogenous bone fill the requirements, as we have established experimentally that all the cellular elements of bone transplanted from one species into another disappear and leave the graft in a condition similar to that of one that has been boiled. Thus, when gaps in the long bones are to be filled, only the autogenous graft should be employed, as here we have a condition in which contact for the graft can be secured only at the extremities, and consequently the replacement of the central portions of the transplant must depend on living osteoblasts on the surface of the graft itself. If a large gap were bridged by heterogeneous or boiled bone, union would occur at the two ends, in all probability; but the central portion, having no living elements, would slowly absorb and disappear under the action of the body fluids and giant cells. Again, in the treatment of non-union in fractures, the autogenous graft is essential, because here we are dealing with fragments of bone in which osteoblastic activity is at a minimum.

It is necessary, therefore, to supply living osteoblasts in the largest possible quantity if we are to feel assured of success from operation. Bearing in mind that in these cases we are trying to supply the largest

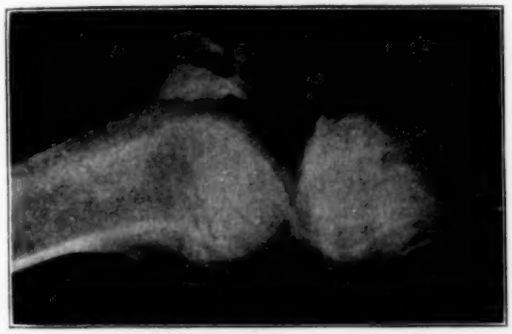

Fig. 8.—Roentgenogram of fracture of patella treated with long boiled bone screw, taken through plaster. The fixation is excellent.

number of living osteoblasts, we should remember that it is only on the surfaces that living osteoblasts survive. It is wise, therefore, to cut the grafts in such a manner that the largest possible osteoblast-bearing surface is exposed. The grafts are cut, accordingly, when the tibia is used, from the face of the bone, not from the crest, the width of the graft being made greater than its thickness. The graft always includes the whole thickness of the bone in order that the endosteal surface, which bears the greatest number of free osteoblasts, may be retained. The old idea that it is better to cut a graft from the solid crest of the tibia rather than from its more porous internal surface is completely refuted by these experiments. In fact, it is much better to avoid the tibia altogether, if strength of the graft is not an essential, and to use a rib that has been slotted so as to expose the endosteal surface to a supply of lymph. The amount of bone regeneration that occurs from the surface of a transplanted rib is much greater than that which occurs from one of the long bones. Further, it is wiser to split the graft longitudinally into a number of pieces rather than to insert it in a single piece, as by this means more surface is exposed and more osteoblasts will survive. In operating for an ununited fracture in a long bone, it is our custom, therefore, to insert a single graft that will be strong enough to fix the fragments and then to fill in around it with a number of smaller strips of bone. The result is a great mass of callus which will aid materially in the union of the fracture.

Here the vexed question of the periosteum presents itself. Some years ago we presented a paper on the subject before the Canadian Medical Association in

Fig. 9.—Roentgenogram of fracture of patella after lapse of six months. Note union of fracture and absorption of screw. Function normal.

London, consisting of a report of a series of experiments based on the work of Macewen. The results of these experiments agreed completely with those of Macewen, indicating that the periosteum as viewed by the surgeon is only a limiting membrane composed of fibrous tissue, and that the great majority of the subperiosteal osteoblasts cling to the bone when the periosteum is removed. This view has been further substantiated by a series of experiments in which bone was transplanted with and without periosteum into the muscles of the back, and the amount of osteogenetic activity on the periosteal surface compared. These experiments showed that the value of the graft from the standpoint of osteogenesis was the same in the two cases. We are therefore in the habit of trans-

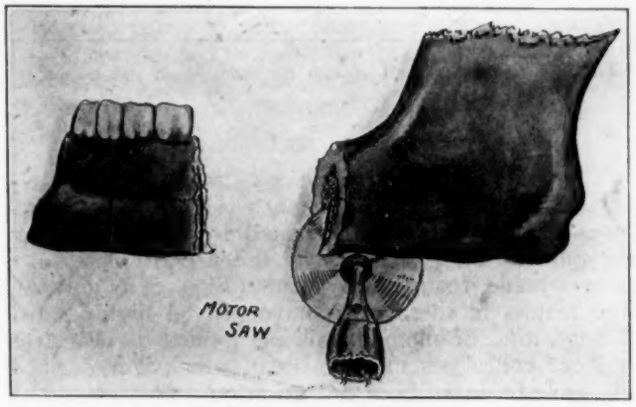

Fig. 10.—Application of motor saw in operation for closing gap in mandible produced by gunshot wound.

planting the bone without its periosteum, using the reflected periosteum to cover up the space left by the removal of the graft.

While the types of cases described above demand the use of the autogenous graft, there are others in which the element of fixation is the principal object of the operation and in which the boiled graft has several decided advantages. In previous papers we

have described the use of boiled plates and screws used to replace the metallic splints described by Lane. The first experiments were performed on dogs, and consisted of the production of fractures and the fixation of the fragments with plates and pegs of boiled bone. The specimens recovered at intervals after the operation showed the rapid union of the fracture and union of the plate and pin to the underlying bone. At the end of two months the union of the dead to the living bone was perfectly solid, and microscopic examination showed the changes described above, namely, the establishment of a circulation, the laying down of new bone on the surface of the plate, and the process of replacement of the dead bone by the living bone of the animal. At the end of six or eight months, all signs of the plate had disappeared, the only indication of it being a slight fusiform swelling of the shaft, which also disappeared in time (Fig. 4).

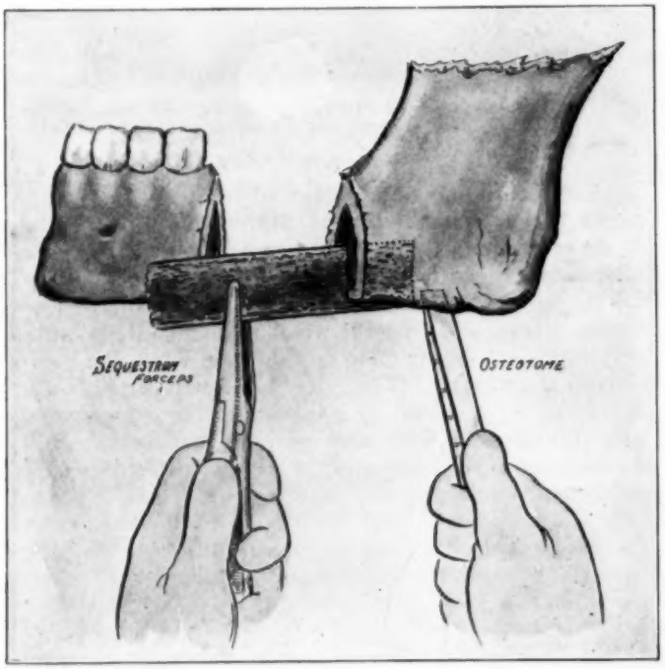

Fig. 11.—Insertion of half of split rib with smooth side toward the mouth cavity.

RESULTS OF BONE TRANSPLANTATION

These experimental findings were immediately applied in clinical cases, and a series of recent fractures of the femur were treated by open operation, the fixation being secured by the use of plates and screws made from boiled bone (Figs. 5, 6 and 7). The results in these cases have proved highly satisfactory, and the method is being applied by ourselves and our colleagues in all cases in which it is deemed advisable to do an open operation on a fracture. The advantage of this method over the Lane technic is obvious, as no foreign material that is apt to get loose or produce late irritation is introduced. The union of the plate to the living bone and its ultimate absorption are decided advantages, as the bone plate thus combines the valuable points of the metal plate and the heterogenous graft. The advantage of the boiled plate over the autogenous graft rests in the fact that the plates can be made in any suitable shape before the operation, and no second incision or mutilation of the fragments is necessary to secure a graft. Recently the use of the boiled screws has been extended to the operative treatment of oblique fractures of the long bones and to fractures of the patella and olecranon, long screws being used without the application of any plate. The results have been very satisfactory (Figs.

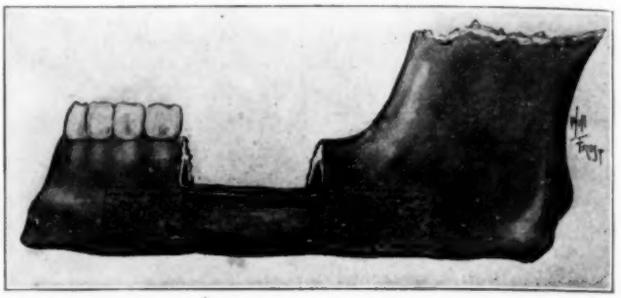

Fig. 12.—Completion of operation by the placing of the other half of the rib in contact with the first half, between the ends of the fragments, and by the fastening of all in place with kangaroo tendon.

8 and 9). As pointed out in previous papers, this employment of boiled bone is not new, as many writers have referred to its more or less successful use; but the experiments referred to above place the principle on a scientific basis and limit its use to those cases in which it is certain to be of value.

At a recent meeting of the American Orthopedic Association, one of us reported the employment of boiled bone in four cases of Pott's disease of the spine. The operation was first performed on a dog, and as it appeared satisfactory, the experiment was extended to four children. The grafts were prepared beforehand, of the correct size and shape, from beef and dog bone, and boiled with the instruments. These boiled grafts were then solidly implanted into the split spines or about the spines from which the periosteum had been removed. Primary union occurred in all the cases, and clinically each case has progressed much as after the autogenous graft. The operations were performed more than two years ago, so that sufficient time has elapsed to allow of the expression of an opinion on the success of such a procedure. The roentgenograms taken at intervals show the solid union of the graft to the spines and the gradual rounding off of the edges and lessening of its density until it appears to exist simply as a fusion of the tips of the spines, much as the ordinary autogenous graft appears after the lapse of a year or more. Fortunately, it was possible to obtain a small piece of one of these grafts two years after it was inserted, and microscopic section of it shows complete disappearance of the dead bone and its replacement by strong trabeculae of living tissue. Over its surface is a perfectly normal periosteum.

Fig. 13.—Soldier on whose jaw operation was performed; range of motion of jaw normal.

If experience upholds the apparent success of these four cases, the value of the technic is obvious. The autogenous spinal graft operation calls for a second

incision over the tibia and an extensive removal of bone for the making of the graft, whereas the use of boiled bone eliminates the necessity for the second operation.

Our clinical experience has now extended over a long series of cases of bone transplantations. It includes a series of sixty cases of Pott's disease in which the spinal graft operation was performed, sixty cases of nonunion and malunion in fractures in which the autogenous transplant was used, and sixty or more cases of open operations on recent fractures in which boiled bone plates and screws or screws alone were employed. In addition, a number of odd operations were performed which will be described later.

The spinal graft operation is of undoubted value. Necropsy specimens, of which we have two, obtained a year or more after the operation, show the solid fusion of the spines. Clinically, these patients are improved by the fixation given to the spine, and as a result they can be allowed on their feet earlier. Increase in the deformity is more successfully prevented by this means than by any other. We employ it in all suitable cases. Just how far the technic as described by Albee will be replaced by the boiled bone method cannot be estimated until further clinical evidence is obtained.

In the open operations for nonunion we favor the inlay graft as described by Albee, although occasionally we have employed the medullary plug. The former appeals to us as the better method, as it opens up the medullary canal well back from the diseased area and allows the outflow of healthy osteoblasts from the fragments themselves. The failures following the medullary plug method are probably due to the plugging of the canal and the prevention of the outflow of osteoblasts. We make it a practice to drill holes and make saw cuts in the ends of the fragments to stimulate the inflammatory reaction necessary to osteogenesis. In addition, all fragments of cancellous or endosteal bone that can be picked up are strewn around the graft in order that the supply of living osteoblasts may be at a maximum. The graft should be extended well beyond the sclerosed bone of the ends of the fragments, and is usually 4 or 5 inches in length.

In certain cases of nonunion in which it is difficult to obtain perfect fixation of the fragments by the inlay method, we have used another technic which has proved satisfactory. Thus, in fractures of the tibia and of the humerus, the fragments sometimes have a strong tendency to slip sideways, and one does not feel that the kangaroo tendons that hold the inlay in position are strong enough to be trusted. In such cases, after the proper preparation of the ends of the fragments, a section of rib, 3 or 4 inches in length, is removed subperiosteally, and by means of an osteotome is split longitudinally on the flat into two plates, each of which has an endosteal surface. One of these plates is cut into strips, and these are used as medullary grafts, care being taken that the medullary cavity is not tightly plugged. The surface of the fragments is then freshened and flattened with an osteotome, and the other half of the rib applied as a bone plate, two or four bone screws being used to hold it in place. The medullary surface of the rib being applied to the freshened surface of the fragments, the union of the rib to the fragments is rapid and the advantage of the autogenous graft secured. The fixation afforded is excellent. This technic is also valuable in ununited fracture of the patella, the split rib being sunk into the anterior surface of the bone across the line of the fracture, after the ends have been freshened, and fastened with bone screws.

Amid all the enthusiasm at present surrounding the employment of the bone graft in the treatment of nonunion in fractures, it must be recorded that failures are frequent. In the past few months we have seen in our military orthopedic clinic half a dozen cases which have been complete failures, owing to disregard for the principles which must be employed to insure success. The chief error in military surgery has been that the bone graft operation has been performed too soon after the healing of septic gunshot wounds which produced the fracture. The result has been the immediate setting up of suppurative inflammation with the extrusion of the graft and the production of renewed osteomyelitis. In these cases, operation must not be performed until six months or more have elapsed after the complete disappearance of all inflammatory phenomena. The next most frequent error has been the attempt to bridge gaps in the bone by the use of short, strong grafts cut from the crest of the tibia. As pointed out above, such grafts show the minimum of osteogenic activity, and in reality are little better than boiled bone, which, of course, would be useless. The grafts must be long and well set into the fragments, and placed in contact with healthy bone; otherwise union of the graft to the fragments will not occur. Further, the graft must be as porous as the requirements of strength will allow, and as many small pieces of osteoblast-bearing bone as can be found must be introduced. For very bad sclerosed fractures we use a tibial graft to provide strength and strips of rib to supply the osteoblasts. In addition, we doubt very much the wisdom of attempting to bridge gaps at all in many cases, recognizing as we do the great difficulty of securing union under any circumstances. It is better to accept a certain amount of shortening, and get the freshened ends of the fragments in good contact before inserting the graft, than to take the additional chances of a failure to get union.

On the other hand, if one performs the operation with due regard to the principles enunciated, success may be anticipated in the majority of cases. We have been able to get good bony union in cases of fracture of the tibia in which nonunion had been present for as long as twelve years.

OPERATION ON THE JAW

In the fracture of the mandible in which it is essential that gaps shall be bridged in order that deformity of the jaws may be avoided, the technic used in our clinic is as follows (Figs. 10, 11 and 12):

The fragments are exposed by a long incision along the lower border of the jaw. The motor saw is then applied to the fragments, and a saw cut made along the inferior border extending an inch to an inch and a half back from the end of the fragment and about half an inch deep. Great care must be taken to avoid opening into the cavity of the mouth or into the sockets of the teeth. An osteotome is then driven into the saw cut, and a greenstick fracture produced, widening the wedge-shaped gap for the reception of the graft. An interdental splint which has previously been cemented to the teeth of both jaws is now locked, with the teeth of the two jaws in exactly the correct relation to one another. The graft is made by resecting 3 inches of a rib. This piece of rib is then split on the flat, in order that the endosteal surface may be bathed in lymph. Half of the graft is then driven into

the slots in the fragments, the smooth side of the rib facing toward the mouth cavity. This leaves the rough, cancellous surface of the graft facing outward and sunk somewhat below the outer surface of the jaw. This depressed area is then filled out by laying a piece of the other half of the rib in the gap, with the smooth side out. The fragments and grafts are now fastened solidly in place with kangaroo tendon passed through drill-holes. This adds additional security although it is really unnecessary, as the principal graft is self-retaining, being wedged solidly into the saw cuts in the fragments.

The operations on the jaws have been most satisfactory. Several soldiers have been operated on in our clinic who have been able to eat ordinary food five months after the implantation of a graft which has bridged gaps of from 1 to 2 inches (Fig. 13).

BONE TRANSPLANTATION IN WOUNDS OF THE FACE

Occasionally the transplantation of bone is of value in cases of wounds of the face in which permanent openings into the sinuses of the nasal cavity have been produced.

During the past year a patient was operated on by Dr. Edmund Boyd and one of us, in whom there had been a complete destruction of the bridge of the nose, leaving a permanent opening about the size of a 25-cent piece leading into the ethmoid cells. This opening was surrounded by a very unhealthy scar. The operation was performed in three stages. In the first stage the septum of the nose was straightened up and the fragments of the nasal bones, which had been driven inward, were removed. At the same time a section of rib was removed and split as described above and placed under the skin of the dorsum of the forearm, superficial to the deep fascia. At the end of three weeks the edges of the wound in the face were dissected free of scar and the nasal process of the frontal bone freshened with a chisel. A pedunculated flap was then raised from the forearm, including the buried bone graft and the deep fascia, and the edge of this flap sewed to the edges of the gap in the forehead. The end of the graft was exposed and placed in contact with the frontal bone, in fact, driven into it. The head and arm were then encased in plaster of Paris and the wound left undisturbed for three weeks. The flap was then freed from the forearm and accurately sewed to the remainder of the opening in the face. Healing occurred kindly, and the whole flap retained its vitality. A small sinus closed after discharging six weeks. This patient now has a complete closure of the unsightly hole in his face, and the anterior wall of his ethmoidal sinuses is protected by a solid plate of bone.

CONCLUSIONS

We wish to draw attention once more to the principles that should govern the science of bone grafting. It must be remembered that a so-called living autogenous bone graft is alive only in virtue of the osteoblasts that are free on its surfaces, and in the mouths of the haversian canals. All the rest of the graft dies and is absorbed. It owes its value in bridging gaps and in encouraging union of ununited fractures to the fact that during the process of its absorption the osteoblasts which invade it from its own surfaces and from the neighboring bones build up new bone to take the place of that which is absorbed, so that ultimately the break in the continuity of the injured bone is bridged by new and healthy bone. This established fact indicates at once the necessity for perfect contact of the graft to fresh, healthy bone in the fragments, and shows the reason for extending the graft well beyond the sclerosed extremities. It also shows the importance of using, as a graft, bone from which the periosteal and endosteal surfaces have not been removed, as it is on these surfaces that the greatest number of osteoblasts is to be found.

For the same reason the graft should be made from bone which is as porous as the requirements of the case, in relation to strength, will allow. Hence the value of the rib as a graft, particularly if it has been opened up so that the osteoblasts of the interior can obtain the necessary supply of lymph.

After the principal graft has been inserted, as many small pieces as possible should be packed around it, the fragmentation increasing the surface area exposed and hence increasing the number of surviving osteoblasts.

In those cases in which the introduction of living osteoblasts is not an essential feature of the operation, the value of boiled bone must not be overlooked, as it possesses many of the virtues of the autogenous graft without some of its disadvantages.

143 College Street.

AN OCCASIONAL TYPE OF LOUD SYSTOLIC MURMUR IN CARDIOSCLEROSIS

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By cardiosclerosis, I refer to marked pathologic changes involving the cardiac muscle, the valves, the aorta, and involving the coronaries and their branches. The damage is rarely equally distributed among these structures. Frequently the aorta and coronary system are the most affected.

Although the auscultatory phenomena to be described are more often present in the senile, the middle-aged are also occasionally affected by a cardiosclerotic process which produces physical signs exactly as in the aged.

The senile cases of this type possessed all the usual characteristics of marked generalized arteriosclerosis: thickened, palpable and tortuous arteries, usually a slight increase in the systolic blood pressure, and a trace of albumin and a few casts in the urine. Cardiac failure was sometimes, though by no means invariably, present. As demonstrated by the physical examination and corroborated by roentgenograms, the cardiac area was enlarged. Pulsation of the aortic arch was usually well marked; this could be demonstrated by insinuating the finger, or the bell of the stethoscope, in the interclavicular notch behind the manubrium sterni.

Of extreme interest were the auscultatory phenomena. Over the entire anterior aspect of the chest a loud, rough systolic murmur was heard, its area of greatest intensity being at the right base and at the lower precordium. The murmur was sometimes transmitted along the carotids and to the lower left interspaces in the axillary line. In addition, it was occasionally transmitted as a muffled or faint systolic bruit posteriorly in the interscapular region, somewhat louder on the right than on the left side.

The complex is well exemplified by the following cases:

REPORT OF CASES

Case 1 (History 3530).—C. L., a man, aged 68, suffered from moderate dyspnea at the time of hospital admission. The systolic blood pressure was 130; the diastolic, 100. The

urine contained a trace of albumin. The cardiac rhythm was normal, the rate between 76 and 80 per minute. Over the entire middle anterior aspect of the chest, there was heard a loud, rough systolic murmur transmitted slightly to the left axilla and along the carotids. The roentgenogram revealed an aortic arch almost twice the normal width, and a somewhat enlarged left ventricle. The patient was put on digitalis medication; he left the hospital one week later; the dyspnea was considerably improved.

CASE 2 (History 3074).—M. C., a woman, aged 64, complained of cough and dyspnea. Six months prior to hospital admission, she suffered from some precordial distress, the exact nature of which could not be determined. The temperature was 102; there was moderate dyspnea, and there were signs of general bronchitis. The fever and bronchitis lasted two weeks. The cardiac area was somewhat enlarged on percussion; a loud, rasping, systolic murmur was heard over the entire precordium; it was especially intense over the right base. The murmur was transmitted along the carotids and laterally to the left axilla. It was also heard as a muffled systolic bruit posteriorly in the upper interscapular region. The systolic blood pressure was 220; the diastolic, 140. The urine contained a moderate amount of albumin and some hyaline casts. The roentgenogram revealed not only slight dilatation of the aortic arch but also aneurysmal dilatation of the entire descending thoracic aorta. The latter was a prominent shadow in the left side of the chest from the second to the fourth left interspace; at that point it became lost behind the shadow of the left ventricle. The characteristics and physical signs of aneurysmal dilatation of the thoracic aorta I have already reported.[1]

CASE 3 (History 3463).—J. M., a man, aged 66, complained of epigastric pain, dizziness, headache and some dyspnea. There were old syphilitic (?) scars on the forearm. The lungs appeared normal. Over the entire precordium there was a loud, rough systolic murmur. The cardiac area was somewhat enlarged to percussion. A roentgenogram revealed moderate enlargement of the aortic arch. The cardiac rhythm was normal. The systolic blood pressure was 135; the diastolic, 95. The urine contained a slight trace of albumin.

The middle aged individuals with cardiosclerosis and loud precordial systolic murmurs often present an unusually robust appearance. Indeed, until examined, one would scarcely suspect such striking contrast between evident extreme pathologic changes in the heart and the apparently healthy looking patient. This group is typified by the following examples:

CASE 4.—C. H., a woman, aged 50, buxom in appearance, has had three children, and no miscarriages. For years she suffered from severe rheumatic (?) neuralgic headaches. For one year, she had had precordial oppression and attacks of severe precordial pain radiating to the jaw, the back, and the left arm. A rest cure lasting several weeks brought no relief. The blood Wassermann was negative. The systolic blood pressure was usually about 170; the diastolic, 110. The nonprotein nitrogen and other constituents of the blood were normal in amount. There was no dyspnea when at rest. On palpation, slight overaction of the carotids and of the aortic arch was noticeable. Over the right base, there was a loud, rough systolic murmur transmitted along the carotids; it was also heard posteriorly in the middorsal region to the right of the spine; below, it became less intense and merged with an extremely loud systolic murmur which was most prominent and distinct over the mitral area. The orthodiascopic tracing revealed an enlarged aortic arch and a somewhat globular and enlarged left ventricle. The patient died a few months later in an attack of edema of the lungs.

CASE 5.—A. B., a physician, aged 54, of vigorous appearance, contracted nephritis following a grip infection about twenty years previously. Cardiac complaints began about four years before I saw him. They at first consisted of occasional hemoptysis and of slight dyspnea. Of late months the dyspnea had increased, and was accompanied by a sense of weight on the chest. The Wassermann blood reaction was negative. The apex beat was diffuse. Over the entire anterior aspect of the chest, there was heard a loud, musical systolic murmur, most intense over the right base and the lower precordium; it was least intense over the midsternum. It was transmitted along the carotids, and was also heard posteriorly at the third dorsal vertebra. The orthodiascopic tracing revealed an enlarged aorta and a hypertrophied left ventricle. The patient died a few months later of edema of the lungs.

The most striking characteristic of these cases — both in the senile and in the middle-aged — is the loud rough systolic murmur heard over a large portion of the anterior surface of the chest. At a casual examination, one might ascribe the murmur to the presence of a large sacculated aneurysm or to aneurysmal dilatation of various parts of the aorta. Both types of aortic enlargement, however, are usually accompanied by diastolic, as well as systolic murmurs, the area of greatest intensity being over the right base of the heart. In aneurysmal dilatation of the descending thoracic aorta,[1] I have found the double murmur loudest in the third left interspace near the sternum; from this location, it tailed away toward the apex and base. In cardiosclerosis, when the loud systolic murmur was heard with or without aortic enlargement, a diastolic murmur was absent. In addition, careful auscultation revealed a marked difference in the intensity of the murmur over the precordium. It was very loud over the right base, losing in intensity over the midsternum, again becoming louder at the cardiac apex and to the left. It thus seemed as if the murmur were made of two components—an aortic and a mitral. The former was probably caused by such arteriosclerotic changes as deformities and thickening of the aortic cusps, and calcareous deposits and thickening of the wall of the aorta. The mitral component of the murmur may be ascribed to the characteristic degenerative changes affecting the mitral valve and the mural endocardium of the mitral ring, with the consequent production of a typical mitral regurgitant murmur. The aortic and mitral components are both systolic in time; hence, when the pathologic changes are of the gross nature above outlined, a loud systolic murmur results which may be of fairly equal intensity over the entire front half of the chest, or there may be an area of less distinctness and intensity over the midsternum.

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1. Neuhof, Selian: Am. Jour. Med. Sc., 1916, **151**, 715.

Patent Medicines.—Death has lately claimed two Americans whose works or whose name and physical presentment were intimately familiar to unnumbered millions of their countrymen. About a fortnight ago there passed away at Columbus one S. B. Hartman. He gave Peruna to civilization. On Sunday there died at Palm Beach one James M. Munyon, whose uplifted index finger had for its only rival in popularity the somewhat similar gesture of the Statute of Liberty in New York Harbor. It is not recorded that either of these men died of a broken heart, or that an autopsy would have revealed, inscribed on that organ, the words "Pure Food Law." Yet there is a certain tragic coincidence in the fact that the disappearance of these two men should have come at a time when prohibition is swarming over the top for the final charge. It is the climax of a campaign which began with the capture of the first-line trenches several years ago, when Peruna and its allies, the various bitters, malt whiskies, wines of life and reinforced sarsaparillas were thrown definitely on the defensive or altogether swept out of existence. Another year or two and most of these giants of the advertising columns will be forgotten. Their fame was writ in equal parts of water and alcohol.—New York *Evening Post.*

VACCINATION AGAINST EXPERIMENTAL POLIOMYELITIS

PRELIMINARY NOTE *

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Efforts leading to the development of a practicable method for protection against acute poliomyelitis have thus far been very poorly rewarded.

Flexner and Lewis,[1] in 1910, showed that monkeys could be immunized against poliomyelitis by repeated subcutaneous injections of increasing amounts of crude unmodified virus over a period of two and one-half months. These animals, after a further ten days, were injected intracerebrally with 2 c.c. of a filtrate of a highly potent virus, of which from 0.05 to 0.1 c.c. would prove fatal. The immunized animal therefore resisted from twenty to forty fatal doses. In a later report, they state that artificial active immunity either by the injection of a single large dose or by a series of increasing small doses of crude virus over a period of time is not uniformly successful. In the former method, some of the animals developed poliomyelitis as a result of the subcutaneous injection, and in both, some of the animals so injected did not resist the test intracerebral inoculations of the rather large dose of a highly potent virus.

Levaditi and Landsteiner[2] dried cords from monkey poliomyelitis after the method of Pasteur for rabies, but they found that some of the animals developed poliomyelitis as the result of the preventive inoculations.

In this communication I shall report the results of efforts toward the practicable utilization of facts established by the authors mentioned.

To be of practicable value, a method of artificial active immunization should have the following requisites:

1. The method should protect against any reasonable exposure to the disease for which the individual is inoculated.
2. The inoculations in themselves should be harmless.
3. The method should not be too cumbersome or prolonged, so as to render production of immunity too slow to be of practical value.

We have attempted to comply with these conditions. The material used is crude monkey virus of the highly virulent Rockefeller strain. The virulence of this strain in 1910 was such that from 0.05 to 0.1 c.c. of a filtrate of a 5 per cent. emulsion was lethal for the *Macacus rhesus*. This strain had been passed through many additional monkey generations when we obtained it, about eighteen months ago, and in our hands has been passed through ten additional generations. The method employed in this work consists of the daily subcutaneous injection of this virus, either brain and cord or cord alone, in 10 per cent. saline emulsion on five successive days. The material used on the first four days is modified by heat. The final injection is made up from either the fresh or glycerolated material unheated. The material of the first two injections is subjected to 55 C. for one-half hour; of the third injection, to 45 C. for one-half hour; of the fourth, to 37 C. for one-half hour; the fifth is unmodified by heat. Twenty days after the last injection, the animals are bled from the heart for the purpose of determining the presence or absence of neutralizing substances. On the following day, the "immunized" animals and normal controls received from three to six intracerebral lethal doses of the highly potent monkey virus. Other animals were inoculated with a mixture of serum obtained by heart puncture from immunized monkeys, and the same virus was used in the test inoculations. This mixture consisted of one part of virus and one of serum, and was exposed to 37 C. for two hours, and to ice box temperature for twenty-two hours. The animals used in these experiments were all of the *Macacus rhesus* variety.

Of eight animals so treated, five have withstood the intracerebral inoculation of from three to six lethal doses. The serums obtained from six of these animals all contained neutralizing principles, but in varying degrees. Two of the serums completely neutralized the virus. The animals receiving these mixtures are alive and well. The remaining four serums prolonged the incubation period to twenty-five, twenty-one, twelve and eleven days, respectively. Four normal control animals showed symptoms in four and five days. A mixture of ten parts of serum and one of virus has been considered a sufficient test to determine the presence or absence of neutralizing substances. It can, therefore, be stated with considerable assurance that serums which can prolong an incubation period of five days from eleven to twenty-five days when used in the proportions of these experiments possess neutralizing substances. Lack of animals has compelled us to apply an unusually severe test. Otherwise we would have made additional tests of the serums in the proportions of ten parts of serum to one part of virus, and five parts of serum to one part of virus, and so have obtained a more definite estimate of the content of neutralizing substances.

The animals treated by this method were subjected to more than a reasonable exposure, as attested to by the effects of similar intracerebral inoculations on the normal controls. These showed symptoms of the fatal disease in four and five days. To indicate further the severity of the test to which the animals were subjected, two monkeys that presented residual paralyses, one of both lowers and the other of the right lower as a result of experimental infections with the virus of the 1916 epidemic, succumbed just as readily as the controls when injected intracerebrally with 1 c.c. and 0.5 c.c., respectively, of the same emulsion used on the treated animals.

According to experienced workers in this field, animals that have recovered from the experimental disease are considered to be highly resistant to reinfection. Yet these animals were reinfected by one-half and one-fourth the dose, respectively, that Flexner and Lewis used in their experiments. Even one minimum lethal intracerebral dose is an unusually severe test from a practical point of view, since by this method of infection the combative forces in the blood of the general circulation are circumvented. In the natural method of infection, the virus would encounter, in persons immunized by such a method as this, a surplus of immune substances in the mucous membranes, and so be neutralized before it could gain access to the central nervous system.

* From the Bureau of Laboratories, Department of Health, City of New York.

1. Flexner, Simon, and Lewis, P. A.: Experimental Poliomyelitis in Monkeys, Seventh Note: Active Immunization and Passive Serum Protection, The Journal A. M. A., May 28, 1910, p. 1780; Eighth Note: Further Contributions to the Subjects of Immunization and Serum Therapy, Aug. 20, 1910, p. 662.
2. Levaditi and Landsteiner: Compt. rend. Soc. de biol., 1910, **68**, 311.

Thus far the method has produced no untoward effects. Eleven animals have been so treated and none have shown any ill results from the injections per se. The attenuated material of the first three injections has apparently produced sufficient immunity to render the animal resistant to the subsequent injections of virus of high virulence.

That this is so was proved by results in four other animals, two of which were injected subcutaneously with crude virus thought to be attenuated by exposure to a weak formaldehyd solution, and two that were injected subcutaneously with virus heated to 50 C. for one-half hour. All of these animals developed poliomyelitis as a result of the subcutaneous injections.

The possibility of harmful effects from the method if applied to human beings is, of necessity, less than when applied to monkeys, since this virus has been adapted to monkeys for the past eight years, and by constant passage through these animals has become highly virulent for the monkey.

The period required for this series of injections is a short one, only five days, which, of course, would render it highly practicable in time of epidemic, when a rapid method is to be desired. Furthermore, it is a simple method. Ordinary laboratory facilities are sufficient for the production of this vaccine. Glycerolated brains and cords of this highly virulent virus can be kept on hand over long periods of time, and the vaccine made up from time to time from this stock as occasion demands.

Further work along these lines is in progress, particularly with reference to the duration of the period of immunity conferred by this method.

THE VALUE OF ROENTGEN RAYS AND BENZENE IN THE TREATMENT OF POLYCYTHEMIA VERA *

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AND
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The treatment of that form of polycythemia associated with splenomegaly and chronic cyanosis has not, up to the present time, been entirely successful. In the absence of any exact knowledge concerning the pathology of polycythemia vera, therapeutists have been unable to attack the disease at its source. The treatment has, for the most part, been symptomatic, and the available therapeutic measures have been directed chiefly to the reduction in the number of circulating red blood corpuscles. Such efforts have been well directed, because it seems not unlikely that many of the symptoms of the disease—the headache, vertigo, cyanosis and dyspnea—are in great part attributable to the mechanical stasis in the circulation due to the polyglobulism. And whereas, the therapeutic agents employed have not resulted in permanent cures, they have been effective in reducing the number of circulating erythrocytes, and on this account they merit the attention that has been accorded them.

With this end in view, a number of methods have been tried, such as splenectomy, venesection, the administration of drugs, and the application of various rays either to the spleen or to the long bones.

The removal of the spleen in this disease has usually been fatal within a few days, and the treatment is therefore contraindicated.

Venesection has been employed on the ground that it gives at least temporary relief. But all who have resorted to this measure are now agreed that even if repeated at fairly regular intervals, venesection fails to produce any permanent good effects.

The drug therapy of this affection has been especially inclusive, as nitrites, iodids, bromids, mercury, and a host of other medicinal agents have all been tried. With the exception of benzene (benzol, C_6H_6), however, these drugs have brought about only a doubtful improvement in the clinical symptoms of which these patients complain.

The results reported from the use of the roentgen rays alone are contradictory. Judging from the observations recorded in the literature, the application of roentgen rays has been of marked benefit in some cases, whereas their employment has been unsuccessful in others.

It is our purpose in this report to record the beneficial therapeutic results that have followed the combined use of benzene and roentgen rays in a patient presenting the classical signs and symptoms of polycythemia vera. Although more than a year has elapsed since any form of treatment has been given, the patient's blood still shows a normal number of red blood corpuscles and a normal hemoglobin percentage. Her health continues excellent. The headache and dizziness, symptoms which first brought her under medical observation, have entirely disappeared. There has been an almost complete disappearance of the cyanosis of the facial prominences and extremities, although the lips and mucous membranes still have a reddish cyanotic hue. The improvement in her psychic condition has been marked since she has ceased to be a subject of general interest and curiosity.

REPORT OF CASE

M. D., aged 38, a milliner by occupation, first came under medical observation in April, 1915, complaining of nervousness and dizziness. There had been little illness in her family, and she herself had always been in excellent health. Aside from measles and diphtheria in childhood, she could recall no periods of ill health.

About three or four years before she was first seen, she had had a sudden attack of dizziness lasting only a few minutes, followed by occasional headaches, and in April, 1915, she had been suddenly seized with an attack of blindness, lasting fifteen or twenty minutes.

It was after this last attack that she was examined by Dr. E. H. Julien, who had noted considerable cyanosis of the face, gums, arms and hands. May 18, 1915, a blood count was made which showed a hemoglobin percentage of 105, 12,400,000 red blood corpuscles, and 9,000 white blood corpuscles. A diagnosis of polycythemia vera was made and the patient entered a hospital for treatment. This consisted of a milk diet, frequent intramuscular injections of an arsenical preparation, and venesection. For a period of more than a year, from June, 1915, to August, 1916, venesection was the principal mode of treatment, and she remained comparatively free from subjective symptoms during this period.

In July, 1916, the patient first came under our care.[1] She was found to be well developed and very well nourished, with a dark red face, cyanotic cheeks, and with lips and gums

* From the Medical Clinic, University of California Hospital.
* Presented before the meeting of the San Francisco County Medical Society, Feb. 12, 1918.

1. For the opportunity of following the patient subsequently and for the privilege of carrying out the form of treatment outlined in this report, we are indebted to Dr. E. H. Julien, who kindly referred this patient to us.

also of a somewhat brick red, cyanotic hue. The pupils were dilated, showed a regular outline, and reacted to light and direction. The fundi showed no abnormalities. The teeth were in good condition and the tongue was dark red. The thyroid was not increased in size, and there was no general glandular enlargement. Both heart and lungs were normal. The abdomen was full, rounded and symmetrical. The spleen could be palpated about a hand's breadth below the costal border; the edge was rounded, smooth and slightly tender. The edge of the liver could not be felt, nor were the kidneys palpable. Both upper and lower extremities showed a marked grade of cyanosis. All the reflexes were normal. The Wassermann reaction of the blood serum was negative. The urine was of a dark amber, its specific gravity was 1.020, and neither albumin nor sugar was present. No casts were found. An occasional red blood corpuscle and a few white blood cells were present.

A venesection was done, July 20, and 500 c.c. of blood were removed. The patient was given iodids for a week. August 2, roentgen-ray treatment was begun.[2]

Oct. 9, 1916, she was admitted to the medical service of the University of California Hospital, where she remained for two weeks. The general findings on physical examination were for the most part the same. The skin was still of a high color, with a cyanotic tinge over the cheeks, malar eminences, nose and ears. The spleen was felt 5 cm. below the costal border, and the splenic dulness extended 15 cm. upward. The edge was firm, but not tender.

An electrocardiogram of the heart showed normal rhythm. The total nonprotein nitrogen of the blood was 43.9 mg. per hundred c.c., and the urea nitrogen was found to be 14 mg. +, both being normal. The percentage volume of carbon dioxid in the blood (Van Slyke) was 52.5, normal.

During her stay in the hospital, the patient took 33 gm. of benzene in one week. This was administered in capsules with equal parts of olive oil. A little less than 5 gm. per day was given. The patient complained of no untoward gastric symptoms from the drug.

After her discharge from the hospital, she took 8.5 gm. of benzene from November 10 to 18, when administration of the drug had to be discontinued on account of a burning sensation in the stomach, with regurgitation and belching. A further attempt to continue the drug was made from November 23 to 28, when the patient ingested 3 additional grams of benzene. The drug now had to be stopped permanently on account of nausea, gastric discomfort and headaches.

The only other form of treatment from September to November consisted of two roentgen-ray exposures over the spleen, one of 25 milliampere minutes, and the second of 30 milliampere minutes. These were continued in December and January, five additional exposures of the spleen having been made during this interval. The results of the treatment are set forth in the accompanying table.

The patient was observed at frequent intervals until May, 1917. By the end of January, 1917, the blood picture showed a complete return to normal, the red count being 5,200,000 and the white blood corpuscles 9,200, with a hemoglobin percentage of 98. The patient's subjective symptoms had entirely disappeared, and the objective signs of the disease were decidedly less pronounced. The skin and mucous membranes were still somewhat suffused, but they were definitely less bluish, whereas the cyanosis and lividness of the extremities

2. We are indebted to Dr. Howard E. Ruggles for the supervision over the roentgen-ray treatments.

EFFECT OF ROENTGEN RAYS AND BENZENE ON THE BLOOD IN POLYCYTHEMIA

Date	Hemoglobin Per Cent.	Red Blood Cells	White Blood Cells	Treatment Roentgen Ray	Benzene	Remarks
May 18-15...	105	12,400,000	9,000	Venesection	.....	P. M. N., 84%; L. M., 3%; S. M., 11%; P. M. E., 1%; P. M. B., 1%
May 27-16...	.....	8,500,000	10,500	.....	.....	Urine showed faint trace of albumin
June 5-15...	100	7,344,000	11,400			
July 20-16...	120 (Sahli)	10,580,000	9,600	Venesection, Potassium iodid, 1 grain daily for 1 week	.....	P. M. N., 75%; S. M., 17.5%; L. M., 7%; P. M. E., 0; P. M. B., 0.5%
July 26-16...	110 (Sahli)	7,760,000	9,200			
Aug. 2-16...	120 (Sahli)	9,100,000	10,200	Roentgen ray Aug. 2-16, 25 milliampere minutes over spleen		
Sept. 2-16...	115 (Dare)	9,240,000	10,200	Roentgen ray Sept. 2-16, 25 milliampere minutes over spleen		
Oct. 12-16...	120 (Dare)	9,920,000	9,000	Roentgen ray Nov. 17-16, 30 milliampere minutes over spleen	.....	P. M. N., 61%; S. M., 25%; L. M., 12%; P. M. B., 7%; P. M. E., 0; myelocytes, 1%; hemoglobin (Fleischel-Miescher), 17.62 gm.; normal, 13.77
Oct. 16-16...	120 (Dare)	10,560,000	10,000	Roentgen ray Dec. 1-16, 20 milliampere minutes over spleen	.....	Viscosity, 7.7 (normal 4.5); platelets, 352,000
Oct. 17-16...	.....	8,808,000	10,000	Roentgen ray Dec. 14-16, 32 milliampere minutes over spleen	.....	Prothrombin quotient normal
Oct. 18-16...	1?J (Dare)	9,280,000	12,600	Roentgen ray Dec. 28-16, 20 milliampere minutes over spleen	. .....	Resistance of corpuscles: max., 0.48; min., 0.30 (normal, 0.30)
Oct. 20-16...	.....	9,000,000	9,000	Roentgen ray Jan. 16-17, 25 milliampere minutes over spleen	.....	Platelets, 488,000
Oct. 22-16..	.....	9,086,000	9,600	Roentgen ray Jan. 30-17, 20 milliampere minutes over spleen	Oct. 22	
Oct. 26-16...	134	8,720,000	8,200	.....	Oct. 31, 33 gm.	Platelets 264,000 Hg (Fleischel-Miescher), 18.48 gm.
Oct. 31-16...	.....	9,568,000	8,200	.....	.....	Platelets, 168,000
Nov. 4-16...	.....	8,688,000	8,000	.....	.....	Platelets, 272,000
Nov. 10-16...	120 (Dare)	8,520,000	11,200	.....	Nov. 10-18, 8.5 gm.	Platelets, 320,000
Nov. 14-16...	118 (Dare)	8,270,000	10,600	.....	.....	P. M. N., 75%; S. M., 20%; L. M., 4.5%; P. M. E., 0.5%
Nov. 23-16...	120 (Dare)	8,720,000	9,200	.....	.....	Platelets, 380,000
Nov. 28-16...	110 (Dare)	7,200,000	11,000	.....	Nov. 23-28, 3 gm.	
Dec. 9-16...	115 (Dare)	7,500,000	8,600	.....	.....	P. M. N., 76%; S. M., 15.5%; L. M., 7.5% P. M. E., 0.5%; P. M. B., 0.5%
Dec. 21-16...	115 (Dare)	6,890,000	6,800	.....	.....	Platelets, 220,000; viscosity, 7.2
Jan. 5-17...	110 (Dare)	6,200,000	8,000			
Jan. 19-17...	98 (Dare)	5,200,000	7,200			
Jan. 24-17...	.....	.....	.....	.....	.....	Viscosity, 6.3
Feb. 3-17...	96 (Dare)	4,808,000	5,000	.....	.....	Platelets, 124,000; bleeding time, normal hg. (Fleischel-Miescher), 13.23 gm.
Mch. 19-17...	95 (Dare)	3,976,000				
May 25-17...	100 (Dare)	4,624,000	7,800	.....	.....	Viscosity, 4.2
Feb. 2-18...	85 (Dare)	4,832,000	7,400			

had entirely disappeared. At this time, the spleen had completely receded above the costal margin and could no longer be palpated.

When last seen in February, 1918, about sixteen months after the beginning of the benzene and roentgen-ray treatment, the patient still continued well, in spite of the fact that no form of treatment had been given during this period, and the number of red blood corpuscles and the percentage of hemoglobin remained within normal limits.

COMMENT

Experimental and clinical observations concerning the effect of drugs and various radioactive substances on the blood and blood-forming organs have brought forth some interesting facts regarding the relative resistance to these agents offered by the white blood cells and the red blood corpuscles. In the first instance it has been shown that the various drugs and rays employed exert a selective action on the several tissues giving origin to the formed elements of the blood; and secondly, that the leukopoietic tissues are much less resistant to their destructive action than are the tissues concerned with the formation of erythrocytes. The latter elements, it would appear, show only moderate changes in number and structure at a time when the circulating leukocytes may have almost completely disappeared from the circulation.

The observations of Heinecke and of Selling have established these facts, so far as the action of the roentgen rays or of benzene is concerned. This work shows that the roentgen rays exert a selective action on the lymphocytes, and that even prolonged irradiation will not bring about any noteworthy changes either in the number of red blood corpuscles or in the percentage of hemoglobin. Benzene, on the contrary, has a somewhat different action. This drug has been shown by Selling to act destructively first on the white cells and more especially on the nongranular elements, and later to cause a diminution in the number of erythrocytes. The experimental studies have shown, however, that in order to effect any striking anemia, the drug must be administered in large doses and over a long period of time.

It is because of this essential lymphotoxic action that the roentgen rays alone have not been found of great value in the treatment of polycythemia. Whereas benzene, on the other hand, has yielded some brilliant results in the treatment of this disease, it must be kept in mind that these good effects have usually followed the prolonged ingestion of large doses of the drug—a procedure not entirely without danger. The danger lies, first, in the severe gastro-intestinal disturbance which may follow the administration of very large doses, and secondly, in the marked destructive action which these large amounts may have on the circulating leukocytes.

It was with the hope of testing the value of smaller amounts of benzene, when combined with the roentgen rays, that the mode of treatment outlined in this paper was carried out. The patient, as will be noted from the clinical record and the table, received only 44 gm. of the drug within a period of a month, after which the benzene was stopped. The roentgen-ray treatments, however, were continued about two months longer. Although considerable reduction in the red count followed the use of benzene alone, the erythrocytes began to approach the normal level only after the seventh roentgen-ray treatment.

The good effects of the combined treatment may be attributed either to the joint action of both measures, or to the delayed and cumulative action of the benzene itself. It does not appear likely that the latter measure can be the cause, since previous observers did not succeed in reducing the red count appreciably with the amount of benzene administered to our patient. We are, therefore, inclined to attribute this successful therapeutic result to the combined action of both agents. But the manner in which the roentgen rays may have served as an adjuvant to benzene therapy in this instance is not quite clear. We would venture the suggestion, however, that the roentgen rays may act in a more destructive manner on erythropoietic tissues, which have been rendered less resistant beforehand by the toxic action of benzene.

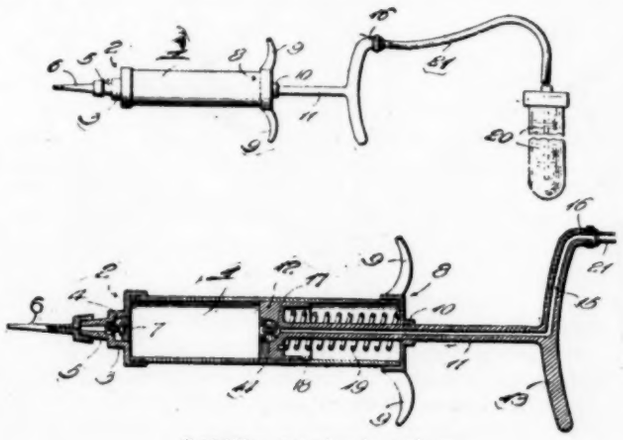
Second and Parnassus Avenues.

Clinical Notes, Suggestions, and New Instruments

A SELF-FILLING HYPODERMIC SYRINGE

A. N. BESSESEN, M.D., MINNEAPOLIS

Local anesthesia is growing in popularity with the medical profession. Generally we have to rely on the ordinary hypodermic syringe for the application of the anesthesia, unless one is fortunate enough to own a Farr apparatus. In the use of the ordinary syringe much time is consumed in refilling, or even in the exchange of syringes. It was with the thought of avoiding this delay that I devised the syringe illustrated.



Self-filling hypodermic syringe.

The syringe refills itself from a container attached to the syringe and suspended conveniently from the wrist of the surgeon. In this way a small or large amount of the anesthetic may be injected accurately with the least effort. In the illustration, 7 and 17 indicate the outlet and inlet valves, 11, 15 and 16 the intake channel, and 20 the container for the supply fluid.

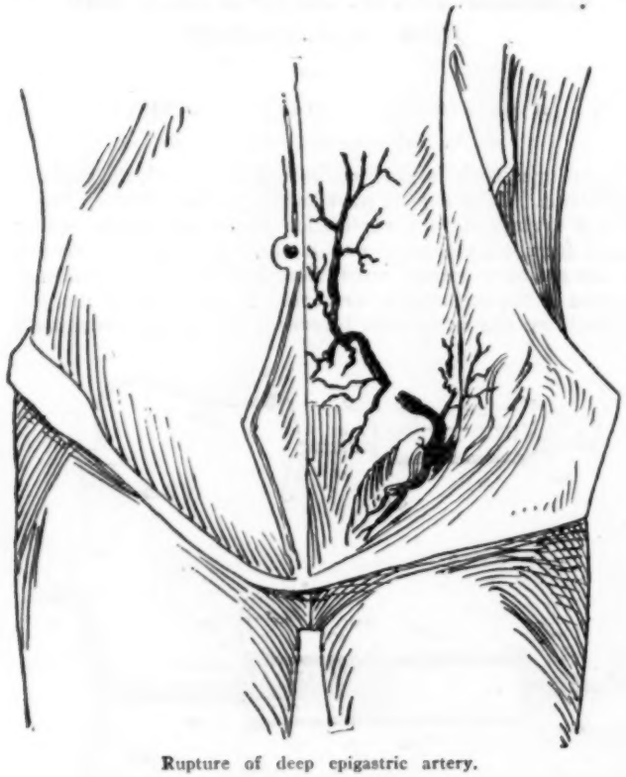
RUPTURE OF DEEP EPIGASTRIC ARTERY BY MUSCULAR STRAIN: REPORT OF A CASE

MARK LEWIS EMERSON, M.D., OAKLAND, CALIF.

History.—A housewife, white, aged 42, with four living children, had had seven miscarriages, five of which had occurred between the third and fifth month, and two during the seventh month. She was admitted to the Merritt Hospital at 9:30 p. m., Sept. 8, 1917, and discharged as cured, November 10. The patient stated that about 5:30 p. m. on the day of admission, four hours before reaching the hospital, while trying to place a curtain rod over a window bracket,

she had jumped up a few inches from the floor, extending her body on her right leg. She had suddenly been seized with a severe pain in the lower left abdomen, had fallen to the floor, and had then fainted. She had awakened to find that she had been placed on her bed. She had felt cold, with clammy sweats, and had been thirsty and very restless Her family physician, Dr. E. M. Keyes, had soon arrived and administered a hypodermic stimulant, which he had repeated before she left the house in an ambulance for the hospital. She stated that she had been in the habit of wearing a long, unusually tight corset to disguise the effect of her rapidly increasing weight on her appearance.

Examination.—Patient was somewhat pale but was not suffering from shock. She was very restless, however, and was nauseated, having recently vomited. A sensitive and painful condition of the lower abdomen would not permit a satisfactory examination. She complained of a burning sensation in the left lower quadrant. A diffuse dulness was also apparent in this region. The pelvic examination was negative, and because of the extremely restless condition of



Rupture of deep epigastric artery.

the patient, the physical examination was very unsatisfactory. The temperature was 99.6; the pulse, 100; white blood count, 15,400; polymorphonuclears, 86 per cent. The urine was normal. An enema was given, with no resulting relief from pain. One and one-half ounces of castor oil gave a free bowel movement within three hours. The following morning, the abdomen was still very sensitive. An appreciable dulness and induration were found on the left side of the lower abdomen. The patient, however, felt and looked better. The temperature was 100.6, and the pulse 90. She seemed to improve daily, with regular bowel movements and normal urine. This condition continued for eight days. The painful, indurated condition of the lower left abdomen had now become an easily palpable tumor of the abdominal wall, verified by bimanual examination.

Operation.—On the ninth day I operated for what I thought might be a direct hernia of the abdomen, with the omentum protruding through the peritoneum, but below the deep fascia. I made an incision 4 inches long over the tumor in the left lower abdomen, on the outer side of the rectus muscle, extending within 2 inches of Poupart's ligament. Through the deep fascia was revealed a large blood clot, containing about two cupfuls of clotted blood. Evidently the hematoma had developed at the expense of the peritoneum, which was blood stained from the severed ends of the deep epigastric artery and vein which lay on the surface about three-fourths inch apart. The artery was easily demonstrated lying on the peritoneum. It had been severed about midway between Poupart's ligament and its entrance into the lower portion of the rectus sheath.

Although active bleeding had long since ceased, I tied both ends of the severed artery and vein, and left a few strands of twisted silkworm gut in the wound for a few days. Convalescence was uneventful, the patient leaving the hospital in three weeks. In view of her repeated miscarriages, I ordered a Wassermann test made, which was negative. November 1, I sent for the patient for further examination and verification of her history. Her blood pressure was 180 systolic. She attributes all her trouble to her long, tight-fitting corsets, which she says held her abdomen so tight that when she extended her leg, the action snapped the blood vessel.

1307 Broadway.

Military Medicine and Surgery

PNEUMONIA AT A BASE HOSPITAL

RUFUS COLE, M.D.
NEW YORK
AND
W. G. MacCALLUM, M.D.
Contract Surgeons, U. S. Army
BALTIMORE

Early in February, a commission was sent by Surgeon-General Gorgas to Texas to study the pneumonia existing there. This commission was composed of Rufus Cole, W. G. MacCallum and Oswald T. Avery, Contract Surgeons, U. S. Army, Captains A. R. Dochez and R. A. Kinsella, and Lieutenants F. G. Blake, T. M. Rivers, H. John, F. A. Stevens and Wm. C. Von Glahn, Medical Reserve Corps. This special study was undertaken at the base hospital, Fort Sam Houston, San Antonio, Texas. This hospital was chosen for this work merely because pneumonia was prevailing there to a large extent at the time, and also because of its proximity to the laboratory of the Southern Department, where facilities were available for carrying out the bacteriologic and pathologic examinations. It was thought that any facts disclosed by the study there might be applicable to other camps and base hospitals. Any general application of our observations, however, must be made with reservations, for it is possible that the conditions in other hospitals may be different from those found here, and therefore that the pneumonia existing in other hospitals may differ in essential details from that present in this one.

Our preliminary survey of the cases in the hospital made it evident that not all the cases were of the same variety and that our present knowledge did not permit a ready differentiation of the cases of the different kinds. An extensive statistical study was therefore out of the question, and we decided to make a very careful clinical, bacteriologic and pathologic study of a limited number of cases.

The study was commenced, Feb. 1, 1918, and continued about six weeks. This paper is composed of extracts from the preliminary reports made by us to the Surgeon-General.

PART I. ETIOLOGY AND CLINICAL FEATURES OF THE PNEUMONIA OCCURRING IN THE HOSPITAL

TOGETHER WITH NOTES CONCERNING THE PLACE AND MODE OF INFECTION IN THE CASE OF POSTMEASLES BRONCHOPNEUMONIA[1]

BY RUFUS COLE, M.D.

VARIETIES OF PNEUMONIA

The account of the results of our observations will be rendered more intelligible if we state briefly that we have found two distinct varieties of pneumonia in the wards of this hospital. First, there are present cases of acute lobar pneumonia, which are essentially identical with cases of this disease occurring in civil life. With all these cases pneumococci have been associated; second, there are present a large number of cases of bronchopneumonia, which differ essentially from the cases of the former disease in clinical features, pathology and etiology. The majority of these cases occur as complications or sequelae of measles, though they may undoubtedly follow other infectious diseases. The pathology of these cases is carefully described by Dr. MacCallum in his report. The etiologic agent in all the cases studied here has appeared to be a streptococcus producing lysis of red blood corpuscles when grown on a medium containing blood. Similar observations have also been made in other Army hospitals, and it seems probable that these streptococci are responsible for most of the bronchopneumonia occurring in the present epidemic of measles. Previous observations, however, suggest that other bacteria may also be responsible for cases with similar clinical and pathologic features. In the further discussion, we shall refer to these two varieties of pneumonia as "acute lobar pneumonia" and "bronchopneumonia." Finally, there occurs, in no inconsiderable number of patients, a combination of these two types of disease, or infection with both pneumococci and streptococci. In these cases, one or the other of the two varieties of disease is probably primary, secondary infection later occurring with the subsequent development of the other variety.

Since the regular hospital data were not considered sufficient for our purposes, complete histories were obtained from a series of cases of both varieties, and our own physical examinations were made and the results carefully recorded. Thirty cases of bronchopneumonia, thirty-two cases of acute lobar pneumonia, and nine cases in which the two varieties of infection were present have been studied.

It was impossible to study all of the cases of pneumonia in the hospital in this way. Consequently, in a considerable number of cases coming to necropsy, the clinical data are slight. On the other hand, many of the cases studied by us ended in recovery, and consequently the pathologic lesions present can only be inferred from the knowledge obtained in the other cases in which necropsy was performed. In twelve cases of bronchopneumonia, however, the clinical observations could be correlated with the pathologic findings.

BRONCHOPNEUMONIA

Bacteriology.—The evidence that *Streptococcus haemolyticus* is the etiologic agent in these cases is given by the study of cultures made from the blood during life and from the organs and tissues of the body after death, and by the study of the sputum coughed directly from the lung.

Cultures from the blood during life were made in fifteen cases. In only two cases was a growth obtained. In these cases a pure growth of *S. haemolyticus* occurred. The cultures were made only within twenty-four hours of death, however. Studies of the bacteria present in specimens of sputum expectorated from the lung were made in all the cases. The method employed was practically that described previously for the study of the sputum in lobar pneumonia.

Specimens of sputum directly coughed from the lung were obtained in sterile containers. After the washing of portions of this sputum, cultures were made on the surface of blood agar plates, and a small portion of sputum was injected into a mouse. After the death of the mouse, the peritoneal exudate was examined microscopically, and cultures were made from this exudate and from the heart's blood.

In all the cases that we have classified as bronchopneumonia, the cultures from the sputum on blood agar plates showed the presence of *S. haemolyticus* in large numbers. In most of the cases in which the mouse test was carried out, examination of the heart's blood showed the presence of this organism (in sixteen out of seventeen cases). In thirteen of the specimens of sputum, *Bacillus influenzae* as well as *S. haemolyticus* was found on the plates. In five instances, the patients died and came to necropsy, and in these instances *B. influenzae* was also present in the affected lung. In eight instances, *B. influenzae* was also present in the heart's blood of the mouse. Whether this organism plays any part in this disease is not known. Its very frequent presence is of much interest.

Cultures were made from the infected areas in the lungs, the heart's blood, the pleura, the pericardium, and frequently from other organs of the patients coming to necropsy. In making cultures from the lungs, the pleura over the infected area was seared with a hot knife, and a cone-shaped piece of the lung was remove with sterile instruments. Cultures and smears were then made from the tip of the portion removed. In all of the cases diagnosed as bronchopneumonia during life and all of those cases coming to necropsy which showed the presence of the lesions described by Dr. MacCallum as interstitial bronchopneumonia, *S. haemolyticus* was found to be present in the affected portion of the lung, usually in pure culture. In most of the cases in which empyema occurred, these organisms were present in the fluid in pure cultures.

It was also the rule to find these organisms in the heart's blood after death. In a few cases influenza bacilli were also present in the blood and tissues, along with *S. haemolyticus*. These cases, however, did not differ from those in which the streptococcus was present alone.

Clinical Course.—The picture of the clinical course of the disease which can be constructed from our data is necessarily incomplete and possibly incorrect in certain details. It is hoped, however, that it may be amplified and corrected by more complete studies in other camps. The study of these cases has not made it possible to differentiate, clinically, between the cases showing the lesions described by Dr. MacCallum as interstitial bronchopneumonia, and those showing the lesions described by him as lobular pneumonia. Consequently, in our discussion all these cases are termed "bronchopneumonia."

1. This part of the work was carried out with the assistance of Oswald T. Avery, A. R. Dochez, R. A. Kinsella, F. G. Blake, T. M. Rivers, H. John, and F. A. Stevens.

Onset.—All the cases of this group have followed measles. In seven of our thirty cases, a history was obtained of a chronic cough, coryza or sore throat previous to the appearance of the symptoms of measles. Whether pneumonia is more likely to occur in those men who have had previous infections of the respiratory tract is not certain, but it is possible that this factor is of some, but not paramount, importance.

A considerable number of cases of measles show laryngeal infection, as shown by the occurrence of hoarseness and huskiness of the voice. That this is a true inflammatory lesion is shown by the fact that minute ulcerations may be present on the vocal cords.

The first definite symptoms of the disease are usually cough, fever, slight respiratory distress, and the expectoration of a mucopurulent sputum. All of these symptoms, as is known, usually occur in some degree during the febrile stage of measles. In certain cases of measles, the temperature does not fall with, or shortly after, the appearance of the rash, as is usually the case, but the fever continues and becomes higher and the symptoms mentioned increase in severity. In other cases the temperature falls to normal, and then after a period of from a few days to three weeks the temperature again becomes elevated and the symptoms mentioned become severe and characteristic of the disease. In none of the cases we have seen, however, nor in any of those of which we have histories, has there been a complete disappearance of all the symptoms referable to the respiratory tract during the interval between recovery from measles and onset of bronchopneumonia. Even in the cases in which the onset has occurred following the discharge of the patient from the hospital, it is quite certain that cough or respiratory difficulty was present at the time of discharge and persisted up to the time of onset of the pneumonia.

In all the cases that we have observed, the onset has been gradual. In no case was there a chill with sudden elevation of temperature. Vomiting during the early period has been rare.

These observations, as well as the pathologic studies, indicate that the infection, as well as the lesion, is probably a descending one, and that no sharp line can be drawn either in time or symptoms, between the occurrence of the pharyngitis, laryngitis, bronchitis, and finally the bronchiolitis and bronchopneumonia.

Symptoms.—When the disease is well developed, the following are the common symptoms:

Fever: Usually the fever is not high, rarely going higher than 104 F., and even in the uncomplicated cases the temperature is frequently irregular. Wide diurnal sweeps of the temperature curve, however, have usually been associated with the presence of empyema.

Pulse: The pulse has not been extremely rapid, even in the cases near death. Special attention has not been given to the occurrence of irregularities.

Respiratory Distress: This is the most marked and characteristic symptom of the disease, and is usually present even in the early stages. This is quite distinct from the respiratory difficulty seen in acute lobar pneumonia, with the expiratory grunt. In bronchopneumonia the great difficulty is with inspiration, the accessory muscle then being strongly brought into action. Frequently the expansion of the chest wall is slight, but the diaphragmatic pull is powerful, the costal margin being drawn on, and the intracostal spaces being markedly retracted with each inspiration. The patients seem consciously to have difficulty in getting sufficient air into the chest, but the inspiratory phase is not prolonged. The respiratory rate is usually not extremely rapid; frequently, even in very ill patients, the rate is not over thirty per minute.

Cyanosis: This is practically always present, even in the early stages, and in the more severe cases becomes extreme.

Cough: The cough is troublesome; frequently it is markedly increased by change in posture.

Sputum: Usually the expectoration is fairly free and moderate in amount. Its character varies markedly in the different cases and in the different stages of the disease. Early in our studies it was thought that the sputum had a specific appearance, being light-greenish, mucopurulent, sometimes somewhat blood streaked, and of a homogeneous character, spreading like molasses over the bottom of a cup. Later, however, typical cases have been observed in which this kind of sputum was never seen. In some cases the sputum has been nummular, quite mucoid, the masses being tenacious and somewhat sticky. In other cases the nummular masses have been greenish and very purulent. In none of the uncomplicated cases has the sputum been sticky and of a rusty color like that seen in acute lobar pneumonia, nor has it contained large amounts of bright-red blood, as is sometimes seen in the early stages of lobar pneumonia. Whatever its character, it practically always contains large numbers of pus cells.

Restlessness: This is a striking feature of the condition. The patients are fairly alert, rarely delirious, but always anxious and frequently frightened. Sleeplessness, probably due largely to the cough and respiratory difficulty, is very frequently present.

Pain: This is frequently one of the symptoms, and is due to the pleurisy which is almost invariably present. Abdominal pain, in the uncomplicated cases, has not been frequent in this series.

In the typical cases, the symptoms we have mentioned are quite striking and more or less characteristic. It must be remembered, however, that similar symptoms, though of milder grade, are also present in cases of bronchitis without involvement of the smaller bronchioles. The symptoms are characteristic enough in the severe cases, however, to differentiate them from cases of acute lobar pneumonia.

Signs.—We have already spoken of the obvious signs of respiratory distress and the cyanosis which is so striking. Physical examination of the chest may or may not reveal signs indicating consolidation. This, of course, depends on the intensity and focal distribution of the lesions. Where the process is very diffuse, the chest may be resonant throughout, on percussion, though in certain regions, especially at the bases, the percussion note is frequently impaired. On auscultation, râles are usually heard throughout the chest. There are frequently musical and squeaking, in addition to moist, crackling, râles. In typical cases, the râles are more numerous during inspiration, and the inspiratory murmur is harsh. In such cases, the expiratory murmur may be scarcely audible; even though the expiratory murmur is inaudible, however, a succession of medium, moist râles may be heard during the expiratory phase. Over the areas of impaired resonance the breath sounds may be very faint or absent until after the patient coughs, when harsh, mucous râles are heard, and the breath sounds become audible.

In some cases characteristic signs of consolidation, impaired resonance, tubular breathing and intensified spoken and whispered voice sounds are present over small areas. Frequently these signs persist for a few days, and then entirely disappear. In our early cases, these signs were most confusing and difficult to interpret. As we became better acquainted with the pathologic lesions, however, the meaning became obvious. I shall not attempt to bring the signs into relation with the lesions, since this relation becomes quite clear on the reading of Dr. MacCallum's report.

In no uncomplicated cases have we seen wide areas of dulness with characteristic tubular breathing and other signs of consolidation. When these signs have been present, there was always a complicating lobar pneumonia. In a few cases, however, later in the disease, there has been impairment of the percussion note over a wide area, with quite distant tubular breathing over this area, but with voice sounds fairly well transmitted. The repeated insertion of a needle in these cases has failed to reveal fluid, and the needle has felt as though it were in a more or less solid lung. We have interpreted these signs as due to a quite widespread involvement of the lung, with a marked degree of proliferation and plugging of the bronchi, as described by Dr. MacCallum. These are probably the cases which go on to necrosis and abscess formation, such as was seen in three of the necropsy cases. It must be remembered, however, that in the only cases of this type that we have seen at necropsy there was a marked accumulation of fluid in the pleura.

Complications.—Focal infections, such as tonsillitis and otitis media, may be present. They have not occurred frequently in this series, however. The most important complication is empyema.

Empyema.—This condition occurs with great frequency, being present in sixteen of the thirty cases, and in all but one of the necropsy cases. In ten of the cases, the condition was diagnosed by aspiration of fluid from the chest during life. In four additional cases, fluid was obtained from the chest on aspiration, but in these cases, the fluid was only slightly turbid, and contained no bacteria demonstrable by culture.

The diagnosis of the presence of fluid or pus in the pleural cavity in these cases is frequently difficult. In the cases in which large accumulations of fluid have occurred, no great skill is required. It is probably of great importance, however, to detect the presence of small amounts of fluid, and to do this as early after the fluid appears as possible. Small amounts of fluid can be detected only by employing the methods of physical examination of the chest. Roentgen examination is of assistance in certain cases. We have already stated that occasionally, over the more intensely affected areas, there is dulness on percussion, and the breath sounds may be distant. To determine whether these signs are due to an intrapulmonary lesion or to the accumulation of fluid in the pleural cavity is frequently very difficult. The greater intensity of the dulness on percussion, when fluid is present, and the distant faint tubular breathing heard at the margin of the area, are the signs of greater importance. Fortunately, the decision can be obtained by insertion of a needle, and in doubtful cases, this may be done not only once, but many times, if necessary.

Character of the Fluid: In most of our cases, the fluid obtained has been thin, but turbid, owing to the presence of bacteria and numerous fibrinous, purulent floccules. In only three or four cases has a thick, greenish-yellow pus been encountered. The infrequency of an exudate of this character should lead one to suspect, when such fluid is found, that the condition is a complication of lobar pneumonia and not of bronchopneumonia.

Mortality.—Of the thirty patients studied by us, fourteen died and sixteen recovered, a mortality of 47 per cent. Several of the patients are still very ill, however, and will probably die. Since the cases were not taken in succession, it is impossible to say whether or not this is a fair estimate of the mortality rate. Probably the percentage of cases ending fatally in this hospital has been considerably higher than this. A most striking fact is that all the necropsy cases in our series were complicated by empyema. In many cases it has seemed that death was related directly to this complication.

Treatment.—No observations were made on the effect of any special form of treatment. Since the occurrence of empyema is an important factor in the outcome of the treatment of this complication, it deserves a few words of discussion.

Seven of the empyema patients were operated on, a rib resection with drainage being performed in each case. Of these patients, four have died. All of the others are very sick, and a fatal outcome is probable in one or more. On the other hand, of four patients in whom fluid containing streptococci was aspirated from the chest and operation was not performed, all have died. There were three cases in which fluid containing a moderate number of pus cells but no bacteria was aspirated from the chest. One of these patients was operated on; the other two were not. All three of these patients have lived, and from present indications will probably recover, though the patient operated on is still very ill. Our observations are not sufficient to enable us to draw any conclusions as to operation in this condition. They suggest, however, that in the cases in which fluid containing streptococci is aspirated from the lung, the chest should be opened and drained. But the question of operation in these cases is a difficult one, and we cannot be guided entirely by our experience with empyema complicating lobar pneumonia. The problem deserves special study.

LOBAR PNEUMONIA

During the course of our study of cases of bronchopneumonia, a considerable number of cases of typical lobar pneumonia were encountered. Some of these were chosen for study deliberately in order to have a control for the other work; in some the differential diagnosis was made only after careful investigation. One purpose of this study was to demonstrate to the hospital and laboratory personnel the fact that, under the conditions existing here, rapid and accurate diagnosis of the type of pneumococcus causing the infection in lobar pneumonia could be made. A small number of the patients were treated with serum by us or under our direction. This was also done for the purpose of demonstration.

Thirty-two cases of lobar pneumonia were studied. Only two of these patients had recently had measles: one one month, and the other six weeks previous to onset. There seemed no definite relation between the measles and pneumonia in these cases. In one other case, not included in this series, an apparent pulmonary infection with pneumococcus Type IV occurred during convalescence from measles. There was a pleural exudation of clear, sterile fluid; but the signs of lobar pneumonia were never definite.

Of these cases, seventeen were associated with Type I pneumococcus in the sputum; three with Type II; four with atypical Type II; one with Type III; six with Type IV, and one with *Streptococcus mucosus.*

The etiologic diagnosis was made within twenty-four hours in all these cases except two. In these cases, the delay was due to the fact that the sputum was very scanty and unsatisfactory, and the tests had to be repeated. The examination in both of these cases was

made late in the disease. (Some of the patients were studied on admission, others only after they had been in the wards for some days.) In seventeen cases, the diagnosis was made within eight hours, the Avery medium being employed. Considering the conditions under which we worked, this result seems quite satisfactory and demonstrates the possibility of type determinations in a military hospital.

In eleven cases, the presence of fluid in the chest was determined by aspiration. In five cases the fluid was clear, or very slightly turbid. In four of these cases the fluid was sterile; in the remaining case the fluid was contaminated after renewal from the chest and cultures could not be made. In these five cases, the fluid was removed by aspiration, and all the patients recovered without operation. In five other cases, the fluid was very turbid, and cultures revealed the presence of pneumococcus Type I. All of these patients were drained. Three of them are now well or are satisfactorily convalescing. Two of them are still very ill and have irregular fever. In the remaining case the fluid was thick and green, and cultures showed the presence of pneumococcus Type II. This patient was operated on and is also convalescing.

In eight of the Type I cases, the patients were treated with serum. Two of the treated patients were found to be sensitive to horse serum, and it was necessary to desensitize them before the administration of large amounts of serum. All but one recovered promptly; this one developed empyema. This patient has done well since operation and is now convalescent. The results of this small series of cases, therefore, were satisfactory.

Of the thirty-two patients, two died; two of the empyema patients are still ill, and the result is in doubt. The others have recovered.

This experience with lobar pneumonia in this hospital leads us to believe that it does not differ essentially from that seen in civil hospitals, except, perhaps, in its relative mildness. This, however, is to be expected in a population composed of healthy young adults.

CASES OF MIXED INFECTION OR DOUBTFUL CASES

In addition to the cases which were clinically identified as bronchopneumonia and which at necropsy were found to show the lesions described as interstitial bronchopneumonia or lobular pneumonia, and the cases which were typically lobar pneumonia, both clinically and at necropsy, there occurred a series of cases which were more or less complex in their clinical, etiologic and pathologic features.

There were seven cases in which evidence was obtained of a mixed infection with pneumococcus and *S. haemolyticus*, the infections being present simultaneously or in succession. Four of these cases were in patients who had recently had measles:

The first patient had signs of bronchopneumonia beginning a few days after measles. Four days later there was an acute exacerbation of symptoms with signs resembling pneumonia. This patient developed empyema on the side of the lobar involvement; and from this fluid during life pneumococcus Type IV was obtained. Death came six days after the onset of the severe symptom. The necropsy showed the presence of lobar pneumonia of the left lower lobe and an area of typical bronchopneumonia in other portions of the lung. From the blood and the right lung, *S. haemolyticus* was isolated. From the pleural exudate both *S. haemolyticus* and pneumococcus Type IV were cultivated. That a combined infection in this case was present is certain. The chronologic course of events is more difficult to decide. It is impossible to say definitely whether the patient had a bronchopneumonia, with secondary pneumococcus infection, which led to septicemia and death, or whether the streptococcus infection occurred later, or finally whether the two infections occurred simultaneously.

The second patient had otitis media and also pulmonary symptoms lasting almost a month following measles. There then occurred an exacerbation of signs and symptoms, and the ward surgeon made a diagnosis of pneumonia. We saw him two days later and found an empyema on the left side, in addition to some signs of consolidation of the left lower lobe. The fluid from the chest contained *S. haemolyticus*, but the blood culture showed the presence of pneumococcus Type IV. The patient died two days later, and at necropsy a true lobar pneumonia was present, but no evidences of bronchopneumonia. In the cultures at necropsy, only *S. haemolyticus* was obtained from both lungs, and *S. haemolyticus* and *B. influenzae* from the blood. This case is difficult to interpret. The patient had a lobar pneumonia, and this was probably due to pneumococcus Type IV, although for some unexplained reason these organisms were not found at necropsy. Whether the streptococcus infection occurred early in the illness or only shortly before death cannot be determined. Unfortunately, the early clinical notes are incomplete, and we have no knowledge of the severity of the early lung involvement.

The third patient developed fever and respiratory symptoms ten days after an attack of measles. In the interval, however, he had had slight, irregular fever. We saw him four days later. He had then only signs of diffuse lung involvement, with indications of empyema on the left side. The sputum contained *S. haemolyticus*, as did also the purulent fluid aspirated from the chest. No pneumococci were isolated. Four days later he was operated on, and the pleural cavity was drained. He lived almost two weeks, and then died. At necropsy an undrained pocket of pus was found between the left lung and the pericardium, and in addition there was almost complete uniform consolidation of the entire left lung. The other lung showed no evidences of bronchopneumonia. At necropsy, *S. haemolyticus* was found in all the cultures, as well as a gram-negative bacillus producing a putrefactive odor. In this case lobar pneumonia existed without the presence of pneumococci being demonstrated at any time. This may have been due, however, to the overgrowth of the culture with a putrefactive organism, which was undoubtedly a terminal invader. When the lobar pneumonia began, or whether bronchopneumonia was ever present, cannot, of course, be decided.

The fourth patient developed typical lobar pneumonia during convalescence from measles. The blood culture showed the presence of pneumococcus Type I. He developed fluid in the left chest which was purulent, and contained pneumococcus Type I and *S. haemolyticus*. He died three days after the tapping, and at necropsy no pneumonia was found, but several small abscesses in the left lung and a very large amount of purulent exudate in the left pleura. The necropsy culture showed only the presence of streptococci. No pneumococci grew.

There were three patients suffering from acute lobar pneumonia in the pneumonia wards who gave no history of measles but in whom evidence of additional infection with *S. haemolyticus* was obtained. In two of these cases the pneumococcus causing the lobar pneumonia was Type II; in one, Type I.

One of these patients, during convalescence from pneumonia due to pneumococcus Type II, developed empyema, and the pleural exudate contained *S. haemolyticus* and *B. influenzae*. He had had some cough and sore throat for three weeks before the onset of pneumonia, and it is possible that the streptococcus infection antedated the pneumonia. There is no definite evidence for this, however.

The second patient had quite a typical attack of acute lobar pneumonia, also due to pneumococcus Type II. He gave no

history of any pulmonary symptoms previous to the onset of pneumonia. During convalescence, he developed an irregular fever and signs of scattered lesions in the chest. There occurred an effusion of fluid in the pleura, cultures from which were sterile. The examination of the sputum at this time, however, revealed the presence of *S. Haemolyticus*, which had previously been absent. In spite of the fact that the chest fluid was sterile, the chest was opened and drained. The signs of diffuse involvement of the lungs, however, continued, and the patient, one week after operation, is still seriously ill. The study of this case is incomplete, and the evidence of secondary streptococcus infection is not satisfactory, but is suggestive.

The third patient suffered from acute lobar pneumonia, due to pneumococcus Type I, involving the right lower lobe. Convalescence was normal for a week. Signs of pulmonary involvement persisted, however. At the end of the week, the temperature again became elevated, and the presence of fluid in the chest was suspected. Repeated insertion of a needle, however, failed to reveal fluid. The sputum, however, changed in character, and examination now showed the presence of *S. haemolyticus* and *B. influenzae*. Finally, about two weeks after the second onset of fever, a small amount of dark, foul-smelling fluid was obtained by puncture, apparently from the lung. This showed the presence of *S. haemolyticus* and the staphylococcus. About a week later the chest was opened and a lung abscess was drained. Whether the occurrence of abscess was due to secondary infection with streptococci or whether this infection was secondary to the abscess formation is, of course, not certain.

There were two additional patients seen by us in the pneumonia ward who developed empyema, with *S. haemolyticus* in the fluid. One patient had never had measles and the other had had measles two weeks previously. In the case without measles, the occurrence of pneumonia was doubtful.

This patient had been slightly ill for two weeks previous to admission, but had been performing his duties. The pleural effusion was present on admission, so infection occurred outside the hospital. The sputum contained *S. haemolyticus* and *B. influenzae*, and the pleural fluid contained *S. haemolyticus*. The patient was operated on and recovered.

In the second case, which followed measles, there were signs of lobar pneumonia with empyema. The sputum contained only *S. haemolyticus* and *B. influenzae*. The pleural exudate contained *S. haemolyticus*. The patient was operated on, and his present condition is fairly favorable. It is possible that this patient had bronchopneumonia, and not lobar pneumonia.

These cases indicate the frequency of complicated pulmonary infections in the present epidemic, and they also show the difficulty of interpreting the course of events in certain cases. It is true that in most of these cases no careful observations were made during the early stages of the illness. It seems quite certain that lobar pneumonia may sometimes occur in patients already infected with streptococci and with bronchopneumonia already present in the lungs. That bronchopneumonia occurs secondarily to lobar pneumonia is not so well shown by our cases; but they do show that in cases of lobar pneumonia, secondary infection with streptococci not infrequently occurs. This is obviously of much practical importance, suggesting that, so far as possible, patients with lobar pneumonia should be protected from infection with this streptococcus.

PLACE AND MODE OF INFECTION IN POST-MEASLES BRONCHOPNEUMONIA

From the data previously presented, there appears little doubt that a hemolytic streptococcus is the chief, if not the only, cause of the bronchopneumonia following measles which occurs among the soldiers at this post.

We have previously indicated that the infection in these cases is probably descending, occurring first in the throat, and successively involving the lower respiratory passages, and finally the lung. It therefore became of much interest and practical importance to learn whether hemolytic streptococci are present in the upper respiratory tract of all measles patients, and, if so, at what stage of the disease they are first present, or, on the other hand, whether these bacteria are present only in the throats of these patients who later develop pulmonary lesions.

We therefore first attempted to determine the prevalence of hemolytic streptococci in the throats of all the patients in the measles wards of this hospital. To do this, cultures were made from the pharynx and tonsils of these patients on blood-agar plates. The plates were incubated twenty-four hours and then studied for the presence of hemolyzing streptococci. These organisms were identified by isolation in pure culture from a single colony and by testing staining reaction, morphology, cultural characteristics, bile solubility, hemolytic activity and fermentation reactions. Hemolysis was determined by testing the power of a twenty-four hour broth culture to hemolyze an equal amount of a 5 per cent. suspension of the red blood cells of rabbits. The degree of hemolysis was recorded at the end of two hours at 37 C. Table 1 gives the results of the study.

TABLE 1.—INCIDENCE OF STREPTOCOCCUS HAEMOLYTICUS IN THROATS OF PATIENTS IN MEASLES WARDS

Total Number of Cases Examined	Number of Positive Cases	Number of Negative Cases	Per Cent. of Positive Cases
69	39	30	56.5

At the time of the examination, these patients had been in the measles wards for periods of time varying from one to fifty-five days. Of the sixty-nine patients examined, thirty-nine, or 56.5 per cent., showed the presence of *S. haemolyticus* in the throat.

These observations indicate that a large proportion of the patients confined to the measles wards harbor these organisms in the throat.

It next appeared of importance to learn whether or not this high incidence of carriers of hemolytic streptococci is peculiar to the measles wards or whether a similar state of affairs exists among the patients in other wards of the hospital. The incidence of streptococci of this variety in the throats of normal individuals under ordinary circumstances has not been determined accurately. In the presence of an epidemic of streptococcus infection, such as streptococcic sore throat, it has been found that a considerable number of healthy persons may carry this organism in the throat. On the other hand, the observers who have made fairly extensive studies on the flora of the normal throat, in the absence of epidemics of this kind, report that the occurrence of actively hemolytic streptococci in the throats is very rare. At the time of our arrival at San Antonio, it was evident that an epidemic of coryza, laryngitis and mild bronchitis existed among both the civil and military population. In some limited observations which we made, it was found that in the throats of persons suffering from this affection, hemolytic streptococci, and also influenza bacilli were occasionally present, singly or combined. It was possible, therefore, that the study of persons other than those suffering from measles might show a high incidence

of hemolytic streptococci in the throats. Consequently cultures were made from the throats of patients in a ward in which the patients were suspected of having tuberculosis but who had no other disease. Table 2 presents the results of this study.

TABLE 2.—OCCURRENCE OF STREPTOCOCCUS HAEMOLYTICUS IN THE THROATS OF TUBERCULOSIS SUSPECTS (WARD 27)

Total Number of Cases Examined	Number of Positive Cases	Number of Negative Cases	Per Cent. of Positive Cases
28	6	22	21.4

The occurrence of *S. haemolyticus* in the throats of these patients is considerably less than the incidence among the measles patients. It should be mentioned that the patients in the tuberculosis ward are not rigidly isolated from patients in other parts of the hospital, transfers from this ward to another, and vice versa, not infrequently being made. Several cases of tonsillitis and pharyngitis were discovered during the process of making cultures. Moreover, these patients live in very close association, being confined in the ward and only a few of them being confined to bed.

There were two methods available to discover whether the measles patients acquired the hemolytic streptococci before admission, or whether transfer from one patient to another probably occurred in the ward. One method was to make cultures on a large number of men in the barracks from which the patients with measles came, with the object of learning whether the incidence of streptococci in the throats of these healthy men was less than that among the men in the wards; the other was to make cultures from the patients with measles on admission to the hospital and then to repeat the examinations from time to time, in order to learn whether or not any of the patients with negative cultures later acquired the organisms. The latter method was chosen as consuming less time and more likely to give definite information. The results of the study are presented in Table 3.

TABLE 3.—OCCURRENCE OF STREPTOCOCCUS HAEMOLYTICUS IN THE THROATS OF MEASLES PATIENTS ON ADMISSION, AND THE SUBSEQUENT ACQUISITION OF THE ORGANISM IN THE CASES PREVIOUSLY NEGATIVE

		Per Cent.
Total number of cases examined	44	
Number of cases positive on admission	5	11.4
Number of cases positive 3 to 5 days after admission	17	38.6
Number of cases on final examination—8 to 16 days after admission	25	56.8

An analysis of this table indicates that a relatively small percentage of patients on admission to the measles wards harbor *S. haemolyticus* in their throats. However, as the time of residence in the ward increases, the number of carriers of *S. haemolyticus* increases, until finally the percentage of incidence becomes as high as that found in the measles wards in general. Because of these observations, there seems to be very little reason to doubt that a large percentage of measles patients acquire *S. haemolyticus* in their throats for the first time during their stay in the hospital wards.

While this study is not extensive enough to be absolutely conclusive, it indicates strongly that the high incidence of bronchopneumonia during convalescence from measles is directly related to the transfer of the infectious agent from one patient to another in the wards of the hospital.

These observations led us to suspect that the frequent occurrence of streptococcus complications, especially empyema, might also be related to the possible wide distribution of hemolytic streptococci among the patients in the pneumonia wards. Although an effort has been made to admit to the wards assigned to the care of patients suffering from acute lobar pneumonia only patients suffering from this disease, it is quite certain that owing to the difficulties of diagnosis, a considerable number of patients with bronchopneumonia have been treated in these wards. We have already referred to certain of these cases.

To investigate this question, cultures were made from the throats of all the patients in two wards which contained only patients thought to have acute lobar pneumonia. Cultures were made from forty-five patients. The technic employed was exactly that used in the tests previously mentioned. It was found that twenty-six, or 57.7 per cent., of all these patients harbored hemolytic streptococci. In view of the high incidence of streptococcus infections among the lobar pneumonia patients, these results are most interesting and suggestive. There is no reason to believe that the percentage of patients carrying hemolytic streptococci on admission is larger than the percentage of measles patients who do so when admitted. This question, however, has not been investigated.

COMMENT AND CONCLUSIONS

The studies indicate that the cases of pneumonia at the base hospital, Fort Sam Houston, are chiefly of two varieties: first, acute lobar pneumonia, which does not differ essentially from that which occurs elsewhere; and second, bronchopneumonia, which in most cases, at present at least, follows measles.

The pulmonary lesions in most cases of this type of bronchopneumonia are characteristic and specific and have been studied and described by Dr. MacCallum. The etiologic agent in all the cases studied by us has been *S. haemolyticus*. There is no evidence presented by this work that indicates that pneumococcus causes the lesions and symptoms of this condition. Pneumonia following measles may be due to pneumococci, but the pulmonary lesion is then of the lobar variety. This complication of measles, however, is comparatively rare. Cases may occur in which both types of infection and both types of lesions are present. The sequence of events in such cases is difficult to determine and is probably not always the same.

Streptococcus infections following lobar pneumonia occur with considerable frequency in this hospital. Bronchopneumonia similar to that following measles may also probably occur as a sequel of acute lobar pneumonia, though the evidence for this is not conclusive. Whether in the cases of streptococcus empyema, complicating lobar pneumonia, pulmonary lesions due to the streptococci are always present or not, has not been determined.

The mortality in the cases of bronchopneumonia is very high; that of uncomplicated lobar pneumonia is low. Practically all the fatal cases of bronchopneumonia are complicated by empyema. The incidence of empyema among the uncomplicated cases of lobar pneumonia does not seem to be extremely high.

Our observations indicate that the number of measles patients harboring hemolytic streptococci on admission to the hospital is not large. The majority of the patients with measles acquire this organism during their stay in the hospital. The chance of developing postmeasles streptococcus infections is therefore increased by residence in this hospital.

A very large number of the patients suffering from acute lobar pneumonia have hemolytic streptococci in their throats. We have no direct evidence that they acquire these bacteria in the hospital, but the presumptive evidence indicates that many of them do so.

The work indicates that the high incidence of pneumonia in this hospital, and the resulting high mortality, has been due, to some extent at least, to infection occurring within the hospital itself. The conditions are not unlike those surrounding puerperal fever and surgical wound infections. While in measles, raw surfaces do not exist on which infection can occur, this disease renders the respiratory mucous membrane especially vulnerable to infection with streptococci. Possibly in other diseases, as scarlet fever and even lobar pneumonia, similar conditions exist. When infection is once started in a ward in which the patients are closely associated, the streptococci become widely distributed; they probably gain in virulence with repeated transfer through the human subject, and serious and widespread infection results.

Probably the conditions in this hospital are not unique. It is possible that the widespread incidence of fatal pneumonia in the other army hospitals may have a similar explanation.

PART II. PATHOLOGY[2]

By W. G. MacCallum, M.D.

The material for the following study was derived from thirty-seven necropsies performed on the bodies of patients who died in the base hospital of Fort Sam Houston, Texas. They were selected as cases of pneumonia, but in three of them it proved that death had resulted from other causes. Nevertheless, the lungs in these patients, as well as those from several other miscellaneous cases in which the necropsies were performed by the resident staff, were studied.

The results are by no means easy to analyze, since there are many complications, many combinations of different infections, and many variations arising from differences in the stages of the disease at which the patient died. Briefly stated, however, it appears that two main types of bacterial infection are concerned. On the one hand, there are cases due to infection with one or another form of the pneumococcus; on the other hand, many cases have occurred in which a hemolytic streptococcus is the etiologic agent. Other bacteria have been found, notably the influenza bacillus, a gram-negative bacillus of undetermined nature, and occasionally one or another of the staphylococci; but all of these appear to be rather accidental invaders, and it seems scarcely probable that they are in any way responsible for the main anatomic changes.

Analysis of the cases appears to show fairly conclusively that the pneumococcus is responsible for those in which lobar pneumonia was found. The *Streptococcus haemolyticus*, in most instances, seems to cause a peculiar form of bronchopneumonia, which on account of its anatomic characters I have designated "interstitial bronchopneumonia." There are, however, some cases in which this organism, growing in overwhelming numbers or with especial virulence, produces a patchy pneumonia of a type more closely resembling the familiar lobular or bronchopneumonia found so often as a terminal event in persons dying of some chronic disease, or in those in whom aspiration of infected material has occurred. This may be referred to as "lobular pneumonia."

One of these infections may be superimposed on the other, and there may even be found lesions corresponding to each in the same lung.

Fibrinopurulent pleurisy with abundant exudate has occurred with extreme frequency in these cases.

Since it is recognized that pneumonia frequently follows measles, this relation was especially studied. There were fifteen definite cases of measles in the series, and in eleven of these the interstitial bronchopneumonia was found. Two showed, at necropsy, lobar pneumonia alone, two lobular pneumonia alone, while two presented a combination of lobar and interstitial bronchopneumonia. In all there were seventeen cases of interstitial bronchopneumonia, and in the six cases of this condition not definitely following measles, no history of measles was obtained in five, although it was conceded that in the course of the great local epidemic these men might have passed through mild attacks of measles which were not mentioned when the clinical history was taken. The sixth case was at first regarded as measles, but later as scarlet fever. From all the cases of interstitial bronchopneumonia the hemolytic streptococcus was isolated, and it seems clear that this is the true causative factor, whether it gains entrance on the basis of a predisposing measles or otherwise. Details concerning all these relations will be given in full in a later report, but in this preliminary report it is necessary to describe the following conditions as they occurred in this series: (1) interstitial bronchopneumonia; (2) lobular pneumonia; (3) lobar pneumonia; (4) empyema; (5) combined infections; (6) other complications.

1. INTERSTITIAL BRONCHOPNEUMONIA

This is the condition already fairly well known through the work of Bartels, Delafield, Steinhaus, Hecht and others as occurring in children as a sequel of measles, whooping cough, etc. Their descriptions correspond closely with what we have found in adults, except in the general lack of complicating empyema in children, and in certain minor histologic details, notably the presence in the lungs of children of extraordinary giant cells derived from the epithelium. None of these writers determined the nature of the bacteria concerned. On the other hand, although it has been recognized by various workers in this country that the hemolytic streptococcus is to be found in the bronchopneumonia following measles, none of them seems to have determined the exact nature of this peculiar bronchopneumonia. The association of the hemolytic streptococcus with the interstitial bronchopneumonia must, therefore, be especially emphasized.

The term "interstitial bronchopneumonia" was chosen as expressing briefly the salient features of the lesion. It may not be the most satisfactory term possible, because it fails to describe accurately the earliest stages, and leaves out of account the process of organization of the exudate which is very common; but any term that could describe the whole course of a progressive process would be unwieldy.

The interstitial bronchopneumonia has been studied in various stages in different cases and found to produce extraordinarily different appearances as it progresses.

In the earliest stage, the pleural surface of the lung is smooth and glistening. The lung is, in general, air containing, although atelectatic patches may be making

2. This part of the work was carried out with the assistance of Lieut. W. C. Von Glahn, M. R. C., U. S. Army.

their appearance. On section, small hemorrhagic foci are found scattered through the lung, each showing, as a rule, a gray rather opaque center. These foci measure from 2 to 3 mm. in diameter, sometimes more, and are so small that several may occur in one of the secondary lobules of the lung, that is, in one of the lobules marked off by the interlobular septa (W. S. Miller). Microscopically, it is found that these foci represent the ends of the bronchioles together with the adjacent alveoli. The bronchiole and the ductulus alveolaris are filled with leukocytes, among which streptococci are found in pairs or in short chains. There is some infiltration of the bronchial wall with leukocytes, and the adjacent alveoli contain a few leukocytes, occasional streptococci, coagulable fluid, and great numbers of red blood corpuscles. Not only the alveoli which form a continuation of the bronchiole, but also those which lie near its wall, seem to be affected.

In a somewhat later stage the lung can still be distended with air, although the patches of collapse are more extensive. On section it is found to be studded throughout large areas with small, gray nodules which project above the cut surface like miliary tubercles, and are often surrounded by a red or grayish halo. At this time there may be visible a minute cavity or depression in the center of each which marks the lumen of the bronchiole. This may be represented, however, by the opaque contents of the bronchiole. These nodules have been mistaken by more than one for miliary tubercles, and it seems conceivable that the peculiar appearance of this and later stages may be in part, at least, responsible for the almost universal statement that measles is commonly followed by tuberculosis. Microscopically, such nodules are found to consist of a bronchiole filled with exudate of leukocytes, sometimes, but not often, associated with fibrin. The epithelial cell layer lining the bronchus is partly disintegrated or detached. The bronchial wall is hyperemic and thickened largely by the infiltration into its crevices of numbers of mononuclear wandering cells which have replaced the leukocytes. The alveoli about the bronchiole appear to contain less blood at this stage; only those immediately continuous with the ductulus alveolaris contain polymorphonuclear leukocytes; the others about the bronchiole usually contain a network of fibrin with mononuclear cells. The alveolar walls in the immediate neighborhood of the bronchiole are thickened by an infiltration of mononuclear cells (lymphocytes, plasma cells and larger wandering cells). Surprisingly few streptococci are found, and those chiefly in the bronchial exudate. Fibrinopurulent pleurisy, often with excessive effusion of greenish, turbid fluid, accompanies the process from this stage on.

In a still later stage the lung is usually much collapsed, dark blue, flabby, and airless except in the anterior portions. This is produced chiefly by the pressure of the pleural exudate, but partly by the occlusion of the bronchioles. At this stage, shotlike nodules 3 or 4 mm. in diameter may be felt all through the lung. On section, the pasty, airless lung sinks into a concave surface, leaving the gray peribronchial nodules projecting conspicuously. The interlobular septa have by this time become greatly thickened and infiltrated with cells and fibrin so that they stand out most conspicuously as whitish-yellow lines, marking out the whole lobulation of the lung in polygonal fields. In each of these fields there may be three or four projecting nodules which now usually show distinctly a central bronchial lumen. The surrounding tissue may be fairly dense, so that the peribronchial thickening is marked out chiefly by its opaque whiteness. Hemorrhage may in some cases stain the outlying regions about the nodules. If the bronchi be opened with the scissors, they are found to be slightly dilated toward the periphery of the lung, where they become thick walled as they run into the terminal portion which forms the center of the nodule. The contents are thick and glutinous. Microscopically, such a lung shows a very great infiltration of the bronchial wall with masses of mononuclear cells. The epithelium usually still persists in places, although much of it is desquamated. The lumen is filled with exudate of leukocytes with rather few chains of streptococci. Sometimes all the lining of the bronchus has disappeared so that in cross section it appears like an abscess. The walls of the adjacent alveoli are greatly widened and stuffed with mononuclear cells, desquamated epithelium, fluid and rather dense plugs of fibrin. Further out the alveolar walls are still thickened and infiltrated, and the alveoli contain chiefly fluid and desquamated epithelium. At this stage, organization of the exudate in the bronchi and the alveoli is usual. Indeed, this organization occurs with surprising rapidity, so that it may be quite advanced in patients who have apparently been ill only about ten days or two weeks. In the bronchi the new connective tissue and blood vessels arising from several points in the wall pervade the exudate and form richly vascular columns of fibrous tissue which extend into the alveoli and branch into each one. The lymphatics in the walls of the bronchi and blood vessels and in the interlobular septa are distended with mononuclear cells and fibrin, and contain numerous bacteria. The bacteria apparently reach the pleural network in this way, and this seems to be the most plausible explanation of the infection of the pleura. The interlobular septa and perivascular tissues are densely infiltrated with wandering cells and become very conspicuous. The pleural surface is covered with a thick, shaggy layer of fibrin, and the pleura itself is greatly thickened by being converted into a vascular granulation tissue which is gradually replacing the fibrin.

Streptococci are present in great numbers on the surface of the fibrinous exudate, as well as in the purulent fluid in the cavity of the pleura. It is to be noted that they, unlike the pneumococcus, are not to be found scattered everywhere in the meshes of the fibrin. It seems possible that they may digest and destroy the fibrin, but at any rate they are found only on its free surface. They are not engulfed by phagocytes as freely as are the pneumococci, and they are found less frequently in the tissues themselves. Even when in an inflamed tissue, such as the lobulated, fat masses which project into the pleura from the outside of the pericardial sac, streptococci are found in a matted layer over the free surface, they can be traced down into the crevices between the lobes of fat only so far as these are freely open. If the surfaces adhere no bacteria are found in the obliterated depth of the crevice.

In still later stages, more extensive infiltration of the peribronchial tissue occurs, and solid yellowish patches from 1 to 2 cm. in diameter appear. The induration about these, with edema and hemorrhage, becomes confluent, so that quite large areas may

appear consolidated. As to the nature of the healing process and recovery from this change, we have had no opportunity to learn anything.

In one case in which in some parts of the lung the lesions just described occurred in a moderate stage of advancement, other areas showed a great increase in the number of streptococci, with a wide dissemination into the tissue and a correspondingly intense inflammatory reaction. In other cases, much later, after a long course in which empyema of long standing has been drained by operation, the lung has been found to contain extensive abscesses, sometimes confluent into large, purulent areas. In such cases, and in these alone, one may expect to find secondary lesions in distant organs. It is rather remarkable that this particular hemolytic streptococcus seems to be an organism of rather slight virulence, with no tendency to spread through the body. Septicemia occurs only in the hours just before death, if at all, and in only one protracted case was there found an infarct-like lesion in the spleen. In all the others, the abdominal organs were normal.

2. LOBULAR PNEUMONIA

In these cases there was evidently an overwhelming infection with a virulent organism, or what amounts to the same thing; the patient offered no resistance to the invasion. The lungs present irregular, patchy, hemorrhagic areas of consolidation which are not especially peribronchial or limited in size. In them the streptococci are found in amazing numbers, often in long, tangled chains, scattered through the alveolar contents as well as in the exudate in the bronchi. In this respect the condition contrasts with that found in the interstitial bronchopneumonia. The exudate itself is chiefly composed of polymorphonuclear leukocytes, with some blood. There is nothing especially characteristic about this process, but it does occur after measles and is sometimes associated with the formation of areas of necrosis of the whole tissue which subsequently assume the appearance of abscesses. These are really not typical abscesses, but rather necrotic areas of consolidated lung tissue loaded with great numbers of bacteria. There were four of these cases.

3. LOBAR PNEUMONIA

Thirteen cases of lobar pneumonia occurred in this series and presented the well known anatomic picture which need not be described. In ten of them the pneumococcus was found, but in the remaining three it was missed, apparently because it was overgrown by the hemolytic streptococcus or by other organisms, since all of these were protracted cases with empyema, in which death occurred some days after operation and drainage of the open pleural cavity.

In four cases, pneumococcus Type IV was isolated. Two showed the presence of Type I and two Type II. In two the type remained undetermined.

It seems very probable that in all the cases the lobar form of pneumonia was caused by the pneumococcus. In those in which the pneumococcus was not obtained in culture, organisms morphologically like them and having the characteristic distribution of the pneumococcus are seen in the sections of the affected lung.

Secondary infection with the hemolytic streptococcus seems to have occurred in some cases, although it remains difficult to tell whether the streptococcus may not have preceded the pneumococcus. In two cases in which the pneumococcus seemed to predominate at necropsy, it was thought probable that the streptococcus infection had been followed by that with the pneumococcus. On the other hand, four or five cases showed the streptococcus in great numbers at necropsy, while the pneumococcus was found only in such lesions as a vegetation on the heart valve or an abscess in the rectus muscle. In one case the pneumococcus was found only in the pleural fluid. In another it had been present in the blood before death. In such cases it seemed probable that the pneumococcus had been outgrown and replaced by the streptococcus.

Of the thirteen cases, five showed the pneumococcus alone. In none of these was there any empyema or excessive outpouring of fluid pleural exudate. But of the remaining eight cases in which there was also a streptococcus infection, there was empyema in all except one, in which both pleural cavities were obliterated by old adhesions.

Certain histologic features with regard to the distribution of pneumococci may be mentioned. While in the case of the interstitial bronchopneumonia the streptococci are in most cases present in relatively small numbers and then confined chiefly to the exudate in the lumen of the bronchus and the immediately adjacent alveoli, to the contents of the lymphatic and the surface of the pleural exudate, the pneumococci in lobar pneumonia are present in great numbers and are scattered diffusely through the whole lung and everywhere through the pleural exudate. It is true that there are some cases of intense infection in which the streptococci grow in immense numbers throughout the affected portions of the lung; but ordinarily they are not to be found, or only rarely seen in the fibrinous exudate of the outlying alveoli. In the lobar pneumonia the pneumococci are rather more abundant in the bronchioles and ductuli alveolares than in the more peripheral alveoli; but many are to be found intimately mingled with the network of fibrin in all the alveoli and in the pleural exudate. The activity of phagocytes appears to be far greater in the case of the pneumococcus, so that great numbers of them are found enclosed in the leukocytes, while most of the streptococci appear to lie free in the exudate.

The transportation of the organisms by way of the lymphatic channels, in the walls of the blood vessels, and interlobular septa and pleura is striking in the case of the pneumococci, as well as of the streptococci. It seems probable, although not proved, that it is in this way that the pleura becomes infected. Injections of the lymphatics from the pleural network gave beautiful preparations showing the connections of this network with the enormous, deep lymphatics which run toward the hilum of the lung, in the walls of the bronchi and blood vessels, and in the septa. These aided in the recognition of the relation of the bacteria to the lymph channels.

4. EMPYEMA

Empyema occurred in twenty-six of the thirty-seven cases of the series. In every case in which there was empyema, *S. haemolyticus* was demonstrated, and although empyema occurs in pure pneumococcus infections, only those cases in this series in which there was also a streptococcus infection developed actual empyema. The exudate appears quite early in the cases of interstitial bronchopneumonia, and is usually a thin, turbid, greenish fluid with floating shreds of fibrin and a relatively thin, fibrinous covering over the lung. Usually this fibrinous exudate cannot be

readily peeled off, but is intimately adherent to the lung and partly organized. Very large amounts of fluid may accumulate — in one instance several liters. The effect is, of course, largely mechanical, causing the collapse of the lung, with corresponding cessation of its function; but it seems that the presence of such a huge culture of streptococci, which appear to grow in enormous numbers in a position in which they are removed from actual contact with the tissues, must be a serious menace to the patient. Further studies should be made with regard to the toxic properties of this fluid and to the presence of bactericidal substances there.

After operation, the pleural cavity tends to become infected with various organisms which confer an extremely foul odor on the exudate. Encapsulated pockets of purulent fluid are often found between the lobes, even though the main cavity may have been fairly well emptied.

5. COMBINED INFECTIONS

Mention has already been made of the fact that both the pneumococcus and the streptococcus may occur in the same individual, and clinical study may show definitely which of these infections appeared first and which was superimposed. It is difficult to arrive at any conclusion as to this from the anatomic conditions, for the ordinary criteria of the duration of an inflammatory process—organization of exudate, production of mononuclear infiltration and indurative new growth of tissue in the framework of the lung — appear so rapidly in the interstitial bronchopneumonia and are so delayed in lobar pneumonia that they help but little.

In three cases there has been found in the lungs a definite intermixture of the anatomic lesions of lobar pneumonia with those of interstitial bronchopneumonia. These conditions seem to tend to exclude each other to some degree, even when they occur side by side in the same lung; but in some places the characteristic lesions of interstitial bronchopneumonia are found embedded in the uniform consolidation of a lobar pneumonia, emerging clearly into view as one leaves the area of lobar consolidation and passes over into the rest of the lung. In two cases the pneumococcus was recovered from the area of lobar consolidation, the streptococcus from the uncomplicated foci of interstitial bronchopneumonia in the same lung. These organisms are, however, too much alike, morphologically, to allow one to recognize them with certainty, in stained sections, in association with their specific lesions, when they occur together.

6. OTHER COMPLICATIONS

Complications with regard to other organs are rare in the cases of infection with this hemolytic streptococcus. Pericarditis occurred a few times, but most of the cases of pericarditis were associated with pneumococcus infection. Otitis media is recorded in several cases. There were two cases of acute nephritis, probably not dependent on this infection, since the kidneys in all other cases were normal. On the whole, there seems to be a very striking absence of involvement of any organs other than the lungs.

The range of complications in the case of pneumococcus infection has been rather greater. There were four cases of pericarditis, one of peritonitis, one of symmetrical bilateral abscess of the rectus abdominis muscles, and one in which death occurred suddenly in convalescence, from embolic occlusion of the pulmonary arteries.

SUMMARY

In the Army camps represented in this hospital, measles has been prevalent. Pneumonia occurred frequently, but not always as a sequel to measles. The nature of measles is unknown, and we have had no opportunity to learn what anatomic changes measles alone can produce. But it does produce coryza, conjunctivitis and laryngitis, and these conditions appear to predispose to infection of the respiratory tract with bacteria. This predisposition is made evident by the great proportion of the cases of the series in which streptococcus infection followed measles; but it is evident that streptococcus infection may occur in a person who has not had measles, and it is quite probable that other diseases, such as scarlet fever, predispose to its entrance in the same way as measles. When *S. haemolyticus* gained a foothold, it usually caused in this series of cases the anatomic complex called here interstitial bronchopneumonia." This is the same whether it is preceded by measles or scarlet fever, or by no other disease, and its characters are due to the specific effects of the streptococcus. When lobar pneumonia followed measles, the pneumococcus was in this series accompanied by the streptococcus, and in some cases the lobar pneumonia was complicated, anatomically, by the corresponding bronchopneumonia.

Infection with the hemolytic streptococcus does not always cause an interstitial bronchopneumonia, but may produce a patchy lobular pneumonia.

One of the most interesting features of our study of the cases in this hospital is the recognition of the invariable connection of *S. haemolyticus* with that characteristic anatomic lesion which was well known, but to which we have for convenience given the name "interstitial bronchopneumonia." This lesion is easily recognized in all its stages by its gross appearance, since the prominent, gray, solid peribronchial nodules with surrounding edema, hemorrhage, organization and induration bear no resemblance to areas of pneumonic consolidation, which are homogeneous, solid patches, on the cut surface of which a plug of exudate projects from each alveolus. The microscopic appearance, as described above, is equally specific and characteristic, and there is no possibility of confusion with lobar or lobular pneumonia.

Empyema is a practically constant accompaniment of this condition, and is of extremely serious import.

The organism does not seem to be very virulent, and there is little tendency for it to enter the blood stream or to produce complicating lesions in distant organs.

Lobar pneumonia due to the pneumococcus has been found in many cases, not especially related to the occurrence of measles, but often complicated by secondary or coincident infection with *S. haemolyticus*. Its characters are exactly as seen elsewhere.

A Backward Community.—"We have no hospital, no visiting nurse, no dispensary and our supervisors make no provision for tuberculous persons. In things of this kind our county is like the dog's tail—always behind. It seems nothing will get them out of this rut. We have a board of health here and the chairman does not report his own cases, or quarantine, and the restrictions are very poor. Officially we know of but one case of tuberculosis and that was found by the examiners of the exemption board."—Report in Illinois *Health News*, August, 1917.

A METHOD OF FACILITATING THE SERUM DIAGNOSIS OF SYPHILIS UNDER WAR CONDITIONS *

HIDEYO NOGUCHI, M.D.
NEW YORK

The necessity for fresh guinea-pig serum and fresh sheep corpuscles in the original Wassermann technic renders that test impracticable unless these two factors are obtainable in the laboratory. I have already introduced a procedure in which the test is made possible without the use of fresh sheep corpuscles, and this antihuman hemolytic method has found wide adoption, notably in the laboratories of the United States Army and Navy. This test, however, still requires the use of fresh guinea-pig serum as complement. Considerable apprehension is being felt at present with regard to the availability of guinea-pigs and sheep to supply the necessary material for carrying out the serodiagnostic test for syphilis according to the methods hitherto in use, and a method which renders the test independent of these resources should be welcome at this time, when economy of labor, expense and time is particularly urgent. That such a method is possible, without sacrifice of the reliability of the test, is to be shown in this paper.

THE VARIOUS ELEMENTS REQUIRED TO COMPLETE THE TEST BY THE NEW METHOD

As is well known, five different elements are concerned in any complement fixation test, to which class the Wassermann reaction belongs: complement, amboceptor and corpuscles, constituting the hemolytic system; antigen and antibody. The hemolytic system merely serves to indicate, by the occurrence or nonoccurrence of hemolysis, the presence of a specific reaction in the mixture of patient's serum and antigen. In other words, when an antibody is mixed with the specific antigen, it produces a compound which fixes or deviates complement and prevents the latter from taking part in hemolysis; consequently hemolysis cannot occur in such a mixture.

In the ordinary Wassermann test the antisheep system is used, fresh guinea-pig serum being employed as complement, together with antisheep amboceptor (rabbit) and sheep corpuscles. The patient's serum is used as the source of syphilitic antibody, but only after removal of the native human complement, present in every fresh serum, by heating the serum to 55 C. for thirty minutes (inactivation). The serum contains varying amounts of both the complement and natural antisheep amboceptor, which, if left unmodified, will constitute uncertain factors in the test. The native complement is therefore replaced by guinea-pig complement, which can be accurately titrated and added in uniform quantities. Fresh human serum also contains very often enough natural hemolysin for sheep corpuscles to cause serious disturbance in the result. While inactivation removes the complement it leaves the natural antisheep amboceptor intact, and when the latter exists in excess the degree of hemolysis produced is accelerated in spite of the use of a definite amount of guinea-pig complement and immune antisheep amboceptor. On account of the disturbing influence of this unknown and often excessive amount of natural antisheep amboceptor, in certain laboratories the serum is being treated with sheep corpuscles in order to remove them by absorption, a very tedious and time-consuming procedure if necessary in the case of 100 or more specimens of serum. Absorption involves the mixing of the inactivated patient's serum with washed sheep corpuscles, subsequent incubation at 37 C. for one hour, and finally separation of the serum from the corpuscles by centrifugation, and with all these preliminary preparations of the patient's serum the final results are no more reliable than those obtained by the antihuman hemolytic system in which there is no disturbing complement or amboceptor from natural sources, and the amounts of complement and amboceptor are always definite and controllable, antihuman amboceptor (immune rabbit) being used in combination with guinea-pig complement against human corpuscles.

In the present method the native complement present in fresh human serums is used as complement in a hemolytic system which comprises, besides the human complement in this form, antihuman amboceptor and human corpuscles. The patient's serum serves as the source of syphilitic antibody as in any other method. The only difference between my antihuman heterohemolytic system and the new hemohemolytic system is that the latter uses human complement instead of guinea-pig complement.

As already stated, the complement content of fresh human serum is variable to some extent, but the majority of specimens contain a quantity which may be taken as a standard for test. Out of 429 fresh specimens (not more than 72 hours old), twenty-two were found to contain an amount of complement less than the average, a few of these containing no complement at all. If the deficiency is slight, it may be remedied by the use of an additional amount of amboceptor; if greater, these serums must be tested with the addition of fresh negative serum as complement. As the complement gradually disappears from the serum on standing, it should be examined in as fresh a state as practicable. Even if kept in a refrigerator after withdrawal from the patient, it should not be older than 48 hours when tested. The method is equally applicable, however, to those serums which have become inactive on standing or have been artificially inactivated by heating to 55 C. for thirty minutes, or to cerebrospinal fluids; in these instances it is only necessary to add an adequate quantity of fresh human serum known to contain sufficient complement and to be free from syphilitic fixing principle.

TECHNIC

Following is a brief description of the technic of the new test, for more extensive details of which the reader is referred to the article appearing in the *Journal of Experimental Medicine:*

The patient's serum, not older than 48 hours (at refrigerator temperature), is used in a dose of 0.1 c.c. for each of two tubes. One tube then receives 0.1 c.c. of antigen and 0.9 per cent. saline solution; the other (control) receives saline solution only. The total volume for each tube is made 1.3 c.c.

The antigen consists of a 1:10 saline emulsion of the acetone insoluble fraction of tissue lipoids dissolved in pure methyl alcohol in a ratio of 3 per cent. (for standardization, etc., the reader is referred to my work in connection with the antihuman system[1]).

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. Noguchi, Hideyo: Serum Diagnosis of Syphilis, Ed. 3, Philadelphia, J. B. Lippincott Company, 1912, p. 79.

After an incubation of half an hour in the water bath at 37 C., the tubes are removed from the incubator and to each are added 0.1 c.c. of a 10 per cent. suspension of washed human corpuscles, and 0.1 c.c. of a dilution of the antihuman amboceptor representing one hemolytic unit. The contents of the tubes are well mixed and the tubes returned to the incubator for a second incubation of the same duration, during which two or three shakings are necessary in order to insure a uniform reaction of the reagents. After completion of the second incubation, the tubes are left at room temperature for about half an hour before the results are read. In case hemolysis is incomplete in the control tubes at the end of the thirty minute incubation period, the addition of another unit of the amboceptor to both tubes and another period of incubation are indicated. If hemolysis is still incomplete, the specimen should be tested anew with the addition of 0.1 c.c. of fresh active negative human serum (as complement).

When inactivated serum is tested, the amount used for each tube is 0.2 c.c. In the case of old serum not artificially inactivated, the amount is 0.1 c.c. In the case of cerebrospinal fluid, 0.5 c.c. of these specimens are devoid of complement and require the addition of 0.1 c.c. of human complement (negative serum). The subsequent procedure is the same as that described for the examination of fresh serums.

Controls, consisting of a known positive and a known negative serum, should of course be provided for each test, as in any other method.

PRACTICAL RESULTS

The test has been applied to several hundred specimens of human serums and a number of cerebrospinal fluids, with altogether satisfactory and consistent results, entirely in accord with those obtained with my antihuman heterohemolytic system (guinea-pig complement, antihuman hemolytic amboceptor, and human blood corpuscles), as well as with those obtained by Wassermann's antisheep hemolytic system.

Too much emphasis cannot be placed on the importance of using an antihuman hemolytic amboceptor which is highly potent, and human serum which is as fresh as possible. A suitable antihuman hemolytic serum should be able to produce hemolysis of 1 c.c. of 1 per cent. human corpuscle suspension in a dose of 0.01 c.c. or less in the presence of 0.1 c.c. of fresh human serum (complement) within from twenty to thirty minutes at 37 C. in a water bath. An amboceptor serum weaker than this gives a less satisfactory result. It is estimated that ten immunized rabbits will yield material (antihuman amboceptor) sufficient to test about 20,000 specimens within a period of one month.

A detailed and extended report of this method, which seems to be especially adapted to use among armies in time of war, will be found in a forthcoming issue of the *Journal of Experimental Medicine*.

Chestnuts and Acorns as Sources of Carbohydrate.—According to the *Lancet*, following some one's suggestion horse chestnuts have been collected and utilized as a source of carbohydrate in the manufacture of munitions in England, and later, on the suggestion of the *Lancet*, acorns have been subjected to analysis with the same idea in view and have been found to contain a greater proportion of carbohydrate than horse chestnuts. In an article read by Julian Baker and R. F. E. Hilton before the Society of Public Analysts and Analytical Chemists they set forth the results of analyses of these two seeds. In the chestnut it was found that the total amount of starch varied from 21.9 to 47.8 per cent., and the total sugars from 11.7 to 19.1 per cent.; in the acorn the starch was said to vary from 55.7 to 57.1 and the total sugars from 6.8 to 8.98. Acorns or chestnuts with their full moisture content yielded, after hydrolysis with acid, 11.5 to 12.7 per cent. of alcohol, or 32 to 36 gallons of alcohol per ton of nuts.

Therapeutics

BOILS AND CARBUNCLES

These frequent and unwelcome visitors are always due to an infection. The greatest preventive is constant cleanliness of the back of the neck, the axillae, and the gluteal, perineal and genital regions, which are the parts most frequently affected with boils. The back of the neck is the most frequent place, in men, for boils and carbuncles to occur. Infection readily occurs in the hair of the lower part of the occiput and upper neck region. Pustulations and boils in this region are due to too infrequent hair cutting and shampooing.

A boil having occurred, contiguous hair follicles may become infected, or more distant parts of the body may develop one or more boils. Doubtless such isolated boils are frequently caused by direct transmission by scratching with contaminated fingers. Frequently boils occur from infection transmitted by way of the blood or lymphatics from some focus of suppuration; or a boil may infect the blood and cause crops of boils and repeated attacks after periods of remission. Repeated crops of boils may occur from foci of infection in the nose, nasal sinuses, tonsils, teeth and gums; they are not as likely to occur from a suppurating ear, from a fistula, or walled-off sinus, but it cannot be too frequently reiterated that foci of infection in the nose and mouth are a menace. Diabetes particularly predisposes to boils.

ETIOLOGY

A furuncle, or boil, is an inflammation of the deeper layers of the skin and adjacent subcutaneous tissue, generally circumscribed about a hair follicle or sebaceous gland. The *Staphylococcus pyogenes-aureus* seems to be the most frequent germ of infection. The intruder, of course, rapidly propagates his species, irritation takes place, the blood vessels of the region become dilated, leukocytes hasten to the defense of the patient, and tumefaction, heat, and pain develop. The afflicted area becomes distinctly circumscribed, and, if not maltreated, may keep the infection within the bounds of the circumscription, with — if many lymphatics are in the region — a rather rapid congestion of the adjacent glands. These also become secondary defenses against infection of the body. The pressure of the part increases, circulation in its center is interfered with, and the central part or core of the inflamed region becomes necrosed, soon softens, and breaks through the skin, and more or less thin pus, with blood, escapes. This generally occurs in about a week. Soon after this the central dead tissue becomes loosened from the healthy surrounding tissue and is easily removed or evacuated. The cavity then granulates and rapidly heals.

TREATMENT

If a boil is first seen when it is only a slight nodule with a punctate white speck on the skin, it has long been considered that abortive treatment is advisable, and that most recommended has been to puncture through this white or red point on the skin into the hard tissue with a toothpick or wooden applicator, which has been dipped in liquid phenol (carbolic acid). Or, with a hypodermic needle, a drop or two of phenol has been injected directly into the center of the hard-

ened part. However, although many times successful, the majority of boils cannot be so aborted, possibly because they are rarely seen at this early stage.

When a boil is first seen well on its way, incision before liquefaction and suppuration should be considered, although sometimes it does not hasten the process and may increase the pain.

The surrounding tissue of a boil should always be kept carefully cleansed with some mild antiseptic wash, as one of the liquid soaps, or even cleansed with a little ether. Then a wet dressing may be applied, best with some alkaline wash. Gauze saturated with such a solution and placed over the part, and a piece of oil silk over it, should be gently strapped or bandaged on. The gauze should be kept constantly moist with warm water. If the skin tends to become red and irritated about the boil, it should be soothed with petrolatum or with a dilute glycerin. No strong antiseptics should be used, any more than momentarily, on the skin. Mercuric bichlorid dressings, so long used and so much overused, are bad treatment for the skin in these cases.

If the part around the boil is hairy, it should be gently and carefully shaved or closely clipped, and when the skin is perfectly dry, iodin may be painted once around the part; then proper simple cleanliness will prevent later infection of the hair follicles.

As soon as the boil is opened, or it has come so near the skin that it is best to incise the outer layer of skin to evacuate the pus, it should be dressed frequently. Besides the cleansing of the skin about the part with alkaline washes, an ointment, as sterile petrolatum, may be spread around on the healthy skin to prevent the more or less irritant excretions from the boil causing irritation to healthy parts. The wet alkaline poultices should be continued as long as there is a hard, inflammatory area. As soon as this induration has greatly diminished, the poultice part of the wet dressing should be stopped, that is, the oil silk, rubber tissue, or waxed paper should be omitted from the dressing, and simply the moist gauze placed over the boil. This wet dressing should be frequently changed, so that no pus is dammed back into the boil and free exit is constantly possible. This means that the dressing should be done at least twice in twenty-four hours, and better, three times.

At each dressing, little pieces of dried pus or tissue should be gently removed with forceps, and just enough pressure brought to bear to bring the particles of dead tissue within reach of the forceps; no squeezing should be allowed.

CARBUNCLES

It is practically impossible to determine in most instances that a patient has a carbuncle. An apparent boil is likely to develop into several boils, with several openings, and becomes a carbuncle. Carbuncles are more likely to occur in men, and in older men than in young men, and more frequently on the back of the neck than on any other part of the body. However, wherever a carbuncle is located, on account of the large amount of tissue involved, there is always more or less danger from a phlebitis with thrombosis and possible direct infection of some large blood vessel.

It is necessary that such a multiple infection as a carbuncle should have free opening for evacuation as soon as suppuration occurs. It may be even advisable for a surgical decision as to whether or not radical excision is advisable to prevent the constant danger of infection in one of the large veins of the head. Carbuncles on the upper lip or near the nose are very dangerous.

It should be remembered that it is always possible for a boil or carbuncle to produce septicemia, and even a serious septic process of deeper structures of the body or of bones. In other words, while the individual boil is being treated, every possible focus of infection must be sought, and if one is found, means taken to eradicate it. A history of repeated boils and pustulations indicates a focus somewhere, and if it is not in direct evidence, all crowned and bridged teeth are under suspicion until the roentgen ray has proved them innocent.

GENERAL TREATMENT

As to general treatment, anything that makes for appetite, good digestion, proper movement of the bowels, and nutrition works for a successful fight against furunculosis. One of the recommended treatments is yeast. The ordinary compressed yeast cake is easily obtained and administered. The proper dose is about one third of a yeast cake, dissolved in a glass of water, twice a day. This makes a sour drink, and is not disagreeable to most persons. If it causes the bowels to become loose, the amount should be diminished. Yeast may have a beneficial action in gastrointestinal sluggishness, and apparently has power to change the flora of the intestine.

Sulphuric acid and nitrohydrochloric acid have been recommended in furunculosis, and sulphur is also an old-fashioned treatment. If the patient is anemic, iron in some form should be given.

When there are multiple small spots of infection on the body, the underclothing should be frequently changed, and warm baths should be taken to prevent reinfection.

Stock vaccines, and more frequently autogenous vaccines, have occasionally been found valuable. On the other hand, sometimes vaccines fail utterly to prevent the recurrence of boils.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

NORMAL HORSE SERUM (See N. N. R., 1918, p. 312).

The Gilliland Laboratories, Ambler, Pa.

Normal Horse Serum.—Marketed in syringes each containing 10 Cc.; also in ampules containing from 10 to 100 Cc. as ordered.

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TETANUS ANTITOXIN, CONCENTRATED (See N. N. R., 1918, p. 315).

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SATURDAY, APRIL 20, 1918

THE REGULAR MEDICAL CORPS—AN OPPORTUNITY

This is a call to the young medical men of America, to the men not yet established and who are seeking a career. The United States Army Medical Corps has eleven hundred vacancies; officers for six hundred and fifty of these are urgently needed now. It is not a sacrifice — the men who can answer this call are in any event practically within the draft age. It is a call to them to choose the Army medical service, not as a temporary vocation, but as a career. Today probably every young physician gives some thought to this choice. Few, however, consider the opportunity with a full knowledge of its advantages.

The medical officer is not only a physician, but a soldier. He has a double function and a double responsibility. The history of our Army medical department is full of examples of men who have fulfilled their responsibilities gloriously. The organization to which the young men are called is one of magnificent traditions, of scientific accomplishment, of transcendent present importance. It offers a position of regular employment, of fixed equable income, of steadily increasing ability, importance and emolument, of opportunity for individual study and recognition. The requirements for admission and the training of the men in the corps, the rank as an officer, insure a most desirable social atmosphere. There is association with well educated, scientific, progressive men and an absence of the petty social jealousies of civil life. The man who is personally fit can go far and achieve much.

The essential requirements are: (1) citizenship, (2) age between 22 and 32 years, (3) graduation from a well-recognized medical school, (4) one year's hospital internship, and (5) good moral character and habits. Applicants must pass an examination not difficult for men who can meet the other requirements. If successful they receive a three months' training course with full pay and allowances.

This is a call first, to men who are not now in the Medical Reserve Corps, and second, to the younger Medical Reserve Corps officers. The first class have not done their duty by themselves or by their country. The second class have shown their patriotism and are no doubt already in the service or completing internships and awaiting call. They have been permitted to "sample the goods before purchasing." To them especially the service should appeal as a career. They too may make application for examination and transfer to the Regular Medical Corps. The Army and the nation need these men now. It does not ask of them the tremendous sacrifices made by the older men who have given up their homes, families, incomes, and perhaps their careers; it offers an established income and an enviable position.[1]

YOUNG MEN, THIS IS YOUR OPPORTUNITY; SEIZE IT!

GASES IN MODERN WARFARE

Despite the fact that the daily newspapers frequently report the use of poisonous gases in the conduct of the war on the European continent, few physicians understand much more about the methods employed, the substances used, the protections devised and the untoward effects encountered than does the layman who carefully follows the reports from the centers of conflict. After all, this is not strange. Gas warfare is an innovation in the struggle between armies. It seemed so unlikely in 1914 that any enemy would introduce this atrocious form of attack that when the first reports of the preparation to employ it reached the allied forces they were scarcely credited, and no serious notice was taken of the information. With the initiation of the first gas attacks by the Germans in 1915, modern modes of conducting war were radically modified.

The story of the varied types of this hellish performance, of how the unexpected was met and mastered, of the frequently altered forms and phases of gas warfare conducted with the aid of skilled engineers, technologists and chemists has scarcely traveled beyond the trenches. It has been full of surprises; replete with difficulties such as confront the student of new diseases; and, if we may forget the awful horror of the consequences, the use of gases has formulated questions of broad scientific import. However terrifying the prospects may be, we must realize that a new and deadly weapon has been used, and its entrance into the arena must be reckoned with by the application of skill and knowledge.

What is the deadly gas, and how is it used? To this the answer may be made that there already are literally a score of harmful gases used in more than

1. Circular of information and application will be sent by The Journal on request.

one way that have attained some notoriety.[1] First used and best recognized in medical circles was chlorin gas. This is sent out as a cloud from cylinders concealed beneath the parapets. The wind must be of suitable velocity and direction to make the attack effective. Protection is afforded by a respirator which causes the gas-laden air breathed to pass through an absorbent soaked in solutions of alkali carbonate or thiosulphate. The next surprise came in the form of carbonyl chlorid, or phosgen ($COCl_2$), an insidious gas difficult to protect against. Fortunately, a partial protection was soon found in helmets saturated with sodium phenate. It became apparent, to quote a military expert, that three things really matter in gas warfare, and these were all emphasized at this early period. They are (1) increased concentration of the gases used, so that the protective devices no longer suffice; (2) surprise attacks, whereby the troops are gassed before there can be made adequate provision for protection, and (3) the use of unexpected new materials.

Accordingly, when carbonyl chlorid began to be used by the Germans in increased concentration, further provision to meet this became necessary. Here chemical ingenuity suggested the use of hexamethylenamin in conjunction with sodium phenate. On the horror of gas clouds the frightfulness of gas shells presently was superimposed. They are asserted to be the most important of all methods of using gas, and are still in the course of development. The widely proclaimed "tear" gases were delivered in this fashion. Originally xylyl bromid or benzyl bromid, obtained by bromination of the higher fractions of coal-tar distillates, formed the contents of the "tear" shells. A concentration of some of these lacrimators in the proportion of one part in a million makes the eyes water severely. The enormous extent to which such chemical products have been employed is indicated by the fact that the Germans have put down heavy barrages of "tear" gas shells. In 1916, such highly poisonous substances as trichloromethyl-chloroformate were included, the attempt often being made to increase the concentration by the mode of shelling so that some of the gas would pass through the protective helmets, as it actually did at times. Hence we can understand Auld's contention regarding the significance of suitable protective devices. "Respirators," he says,[1] "have to fulfil two requirements which are quite opposed to one another. In the first place they should be sufficiently large and elaborate to give full protection against any concentration of any gas, whereas military exigency requires that they be light and comfortable. It is necessary to strike a balance between these two. Upon a proper balance depends the usefulness of the respirator. Oxygen apparatus will not do on account of its weight and its limited life. Two hours' life is excessive for that type. The side that can first force the other to use oxygen respirators for protection has probably won the war."

Last summer witnessed the beginning of the use of a still more harassing gas. An added lacrimator in the form of phenyl carbylamin chlorid has been tried; then came the celebrated "sneezing" gas, diphenyl-chloroarsin, intended to make a soldier sneeze so badly that he will be unable to keep his mask on. But the surprise that scored heavily in 1917 was the "mustard gas," dichloro-diethylsulphid. As many as 50,000 shells containing this "superlacrimator" have been reported as fired in a single night's bombardment. The effect is most insidious. The gas has a distinctive smell, rather like garlic than mustard. It has no immediate effect on the eyes, beyond a slight irritation. After several hours the eyes begin to swell and inflame and practically blister, causing intense pain, the nose discharges freely, and severe coughing and even vomiting ensue. Direct contact with the spray causes severe blistering of the skin, and the concentrated vapor penetrates the clothing. The respirators, of course, do not protect against this blistering.

In passing, we may recall the German hand grenades filled with bromin, chloracetone, chlorsulphonic acid, sulphur trioxid or dimethyl sulphate—surely a ghastly array! If the "colorless, odorless, invisible and highly poisonous" gas has not yet come to the front, its near relatives have nevertheless been in evidence. MEANWHILE, THE CHEMICAL LABORATORIES OF THE ALLIES HAVE NOT BEEN IDLE.

1. The basis for this statement and others pertaining to the subject is taken from the report of an interesting lecture by Major S. J. M. Auld of the British Military Mission, as published in the Journal of the Washington Academy of Science, 1918, **8**, No. 3.

THE HOUSE FLY AND BACTERIA

With the approach of the summer season the annual problem of the fly and its possible menace to health and comfort is presented for serious consideration. Despite the enthusiasm with which the antifly campaigns have been launched in various localities within the past few years, there are many persons who question seriously whether the effort and expense inevitably involved are worth while when considered primarily from the standpoint of the public health. There can be little question that the fly is a nuisance and deserves to be eliminated from the neighborhood of human habitations on grounds of comfort and cleanliness, if not on the basis of danger to health. With respect to the latter aspect of the subject there is no overabundance of evidence as clearcut as now exists with reference to the noxious mosquito. Decisive facts are therefore always to be welcomed.

The common house fly, *Musca domestica*, can transport bacteria in a variety of ways. The micro-organisms may adhere mechanically to the surface of the body, legs, wings and proboscides of the insects; or the insects may carry them in the intestinal tract and deposit them on foods either in the fecal discharges or in the regurgitated food of the so-called "vomit

spots." Among the facts that appear to be reasonably well established is a seasonal variation in the number of bacteria carried. The greatest bacterial flora is apparently coincident with the summer months. That locality may play a part in the numbers of micro-organisms is indicated by the investigations of Cox, Lewis and Glynn,[1] and more recent studies in the District of Columbia.[2] Flies caught in the insanitary or congested areas of Liverpool carried greater numbers of bacteria than flies obtained in the more sanitary, less congested districts. Similarly, flies captured in the residential section of Washington were reported to carry fewer bacteria than the insects obtained from cheap restaurants in the business districts of the city. Still less bacterial contamination was observed in flies caught in the open country near the capitol city.

The possibility of the transmission of harmful micro-organisms has also been established. The cholera bacillus was detected on flies as early as 1886; the bacillus of tuberculosis was found in 1888; that of bubonic plague in 1894; of typhoid fever in 1903. Indeed, during an epidemic of typhoid in Chicago, Hamilton[3] detected typhoid bacilli in five out of eighteen flies that were caught. The list of such findings might be considerably extended. Scott,[2] the microscopist of the Army Medical Museum in Washington, who has made numerous bacteriologic examinations of flies in that locality, reports that the isolation of members of the colon-typhoid-dysentery group of bacilli from numbers of flies indicates that the house fly has the power of carrying the closely allied pathogens, typhoid and dysentery. However, despite the evidence for the contamination of the house fly by the fecal discharges of man and animals, the results of Scott's experiments indicate that typhoid fever in the District of Columbia, under normal conditions, is not referable to the agency of this insect.

The finding of pyogenic cocci on flies by Scott, as well as by a few others before him, furnishes a suggestion of potency for harm. It indicates that the insect may be an agent in the dissemination of suppurative organisms from man to man. Herein, too, says Scott, may lie one explanation of the spread of gangrene in field hospitals under war conditions. A specifically noteworthy accomplishment in the study of the bacteriology of the house fly was Scott's[4] recovery of *Bacillus cuniculicida*, the causative organism of a septicemia in rabbits and guinea-pigs. This helps to explain the sudden outbreaks and spread of certain epidemics among laboratory animals. It emphasizes the necessity for proper screening of windows and doors where experimental animals are kept, and particularly calls for protection from the house fly in cases in which they are inoculated with pathogenic organisms. It is such facts, furthermore, that argue not only for protection of food and persons against flies, but even more for the abolition of the breeding places of these insect pests.

1. Cox, G. L.; Lewis, F. C., and Glynn, E. E.: Jour. Hyg., 1912, **12**, 290.
2. Scott, J. R.: Studies upon the Common House Fly (Musca Domestica, Linn.), I, A General Study of the Bacteriology of the House Fly in the District of Columbia, Jour. Med. Research, 1917, **37**, 101.
3. Hamilton, Alice: The Fly as a Carrier of Typhoid, THE JOURNAL A. M. A., Feb. 28, 1903, p. 576.
4. Scott, J. R.: Studies upon the Common House Fly (Musca Domestica, Linn.), II, The Isolation of B. Cuniculicida, a Hitherto Unreported Isolation, Jour. Med. Research, 1917, **37**, 121.

Current Comment

OUR COUNTRY'S CALL

When our country entered the war the AMERICAN MEDICAL ASSOCIATION placed its services at the disposal of the Government: its entire machinery, its publication and its total resources — the state and county societies with their 81,000 members — for the purpose of organizing the medical profession for the war. To previous calls the profession has responded splendidly. We are confident that the same ready response will be made to this new call for 5,000 additional medical officers. The matter is considered in greater detail in the report of the action of the War Committee of the Association elsewhere in this issue.[1] No one can prophesy what the duration of the war will be; it may be three years, it may be five years; it may demand three million or five million fighting men. But whatever may be the needs to secure victory, they will be supplied. And the medical profession will do its part. In Great Britain and in France the demands required drafting of all able-bodied men — even those past middle life; and this included the medical profession. While a similar draft on the manhood of this country may have to be made, we do not believe that it will be necessary to include the medical profession, for physicians will do voluntarily whatever they are called on to do. However, the time has come for deeds, not words; for action, not promises; for accomplishment, not prophecy. The time has come for every medical man under 55 years of age, who is physically qualified, to consider seriously for himself the question of his duty to his Government. In doing this, each one must realize that practically all who have thus far volunteered have done so at a sacrifice: in some instances the sacrifice has been small; in others, great. Patriotism and one's sense of duty to one's country have been the motives that have prompted the action of those who have joined the Medical Reserve Corps. This has been especially true when action meant sacrifice. That same spirit must and will prevail now.[2]

1. See page 1165.
2. THE JOURNAL will be glad to send application blanks and list of examining boards on request.

PROTECTIVE INOCULATION AGAINST LOBAR PNEUMONIA

While recent investigations have added much to our knowledge of the pneumococcus, a successful method of antipneumococcus inoculation, naturally sought for because of the frequency and the high death rate of pneumonia, has remained unattained. Certain early efforts failed mainly, it would seem, because the essential importance of the different immunologic groups of the pneumococcus was not taken into consideration. More recent work by Lister in the diamond mines at Kimberley, South Africa, promises better results. Lister, who independently worked out the differentiation of pneumococci into several distinct groups by means of immune reactions,[1] his grouping being not quite the same as that of Dochez and Gillespie, finds that the pneumonia prevalent among the workers in the diamond mines is due mainly to three groups of pneumococci,[2] and that three subcutaneous inoculations with a triple vaccine of the three groups prevents the occurrence of pneumonia as caused by members of these groups, but not the pneumonia due to other groups of pneumococci. From seven to ten millions of pneumococci were given at each injection, the cocci being first killed by a germicide and not by heat. The fact that Lister apparently has succeeded in preventing pneumonia caused by the pneumococcus groups of which his triple vaccine was made is certainly worthy of serious consideration. The suggestion lies near at hand that prophylactic inoculation with the prevailing groups of pneumococci should be given a thorough trial where large numbers of susceptible persons are aggregated under conditions that usually favor the outbreak of pneumonia.

THE PURIFICATION OF SWIMMING POOLS

The secretary of the American Association for Promoting Hygiene and Public Baths, Dr. Manheimer,[3] has thus summarized his objections to the various methods of disinfection for pools employed heretofore: Ultraviolet light in actual practice has proved ineffective; copper sulphate in low dilutions is unreliable, and in high concentration is not only costly, but also produces a water disagreeable to swim in; chlorin compounds, while effective as disinfectants, require a technical control usually not available in swimming pools, and when used in excess produce objectionable taste and odors in the water. As the result of Manheimer's investigations at the Research Laboratory of the Department of Health, New York City, he has reached the conclusion that ozone properly applied to the water of a swimming pool effectively purifies the water. When one part of ozone per million parts of water is used, the result is sterile water. When one half part of ozone per million parts of water is used, a bacterial reduction of 99.8 per cent. results, except when too great an excess of air is introduced with the ozone. The application of the ozone for such purposes is said to be automatic in control, reliable in action, and not unduly expensive, so that the New York report recommends the consideration of this substance for use in a standard sanitary purification of swimming pools. Wherever recirculation of water is resorted to, as usually is the case for purposes of economy, refiltration must, however, be combined with the disinfection procedure. Manheimer points out, what is not generally understood, that clear water is essential, not mainly because of esthetic reasons, but for the reduction of the hazard of drowning. No method in actual practice, he adds, measures up to refiltration. It is an open question whether Manheimer's rejection of disinfectants other than ozone is based on adequate data. Both ultraviolet light and chlorin compounds are giving satisfactory bacterial and esthetic results with certain swimming pool waters. While certain advantages of ozone are manifest, it does not seem wise to recommend ozone treatment to the exclusion of other methods. Manheimer's own published observations seem too limited to warrant extreme generalizations. The nature of the water dealt with and other local conditions are obviously factors to be taken into consideration.

1. Publication 2, South African Institute of Medical Research, 1913.
2. Publication 10, South African Institute of Medical Research, 1917.
3. Manheimer, W. A.: The Application of Ozone to the Purification of Swimming Pools, Pub. Health Rep., 1918, **33**, 267.

"TRUTH IN ADVERTISING"

What is there about the "patent medicine" business that seems to make both those who are engaged in it and the newspapers that profit by it, throw truthfulness to the winds? Here, for instance, are some excerpts from advertisements that appeared a few days ago in a high-class newspaper, the Chicago *Evening Post:*

"Famous Beauties Never Get Fat.—Womankind wonders why famous beauties grow old, but do not grow fat. They live at silken ease, amid the porcelain flesh pots. The wine, that puffs out obscure mortals, flows not illiberally down their alabaster throats. Yet their lifelong loaf does not thicken their limbs nor double their chins. What is the secret of the long-lived gracefulness of the haut-ton?"

The "secret" is "Marmola," which, we learn, has been "long familiar to the fashionable pharmacists of the world and their clientele, but which has only recently penetrated to the knowledge of the hoi polloi of womankind." "Marmola," as many of our readers know, according to analyses that have been made, has for its active and essential drug, thyroid extract.

"With this tablet any woman can reduce, be losing a pound a day, in a few weeks; take off fat (where it shows most) on chin, abdomen, hips, etc., without need for exercising, table restraint, fear of wrinkles, or the slightest physical harm or uneasiness."

Feminine readers of the *Post*, then, are assured that they may indulge in a "life-long loaf," may drink alcoholics "not illiberally," may abandon "table restraint"—all without fear of becoming obese, provided they, "the *hoi polloi* of womankind" follow the methods "of the *haut-ton*" and rely on Marmola! The fat woman is told that she can reduce her weight "a pound a day" and can "take off the fat where it shows most"—if she will take Marmola! As a specimen of condensed mendacity and misinformation this Marmola advertisement is a gem. The publishers of the *Post*, of course, do not know the dangers of

thyroid extract self-administered in ignorance of its presence; but surely the absurdity, if not the falsity, of the claims made in the advertisement must be patent to any but the most credulous. One is led to speculate on the effect such advertisements as this have on the readers of the *Evening Post* — for the *Post* is a paper whose clientele is above the average in intelligence. One wonders, too, to what extent the public's confidence in the really meritorious products, advertised in the same paper, is undermined.

BACTERIA AND VITAMINS

That the food accessory factors now familiarly spoken of as vitamins may have some part to play in relation to the immunity of the body from disease, or its susceptibility to invasion by micro-organisms, is suggested by a variety of known facts. One striking illustration is found in the tendency for the development of xerophthalmia when the fat-soluble vitamin, such as occurs in milk fat or butter, egg yolk and cod liver oil, is missing from the diet. From recent investigations it seems probable that not only animals, but even the higher plants, may derive advantage for their growth and development from substances comparable with the vitamins that facilitate animal well-being and exert their potency even when extremely small amounts of the as yet unidentified compounds are added to the culture medium. Loeb and Northrop,[1] who have succeeded in cultivating flies in the absence of bacteria, have shown that these lower forms also apparently require some accessory substance to facilitate their development. Now we are told that even bacteria cannot thrive without the presence of factors which act in very small amounts and are not, by themselves, able to support growth. Lloyd,[2] in England, has called attention to the alleged rôle of vitamins in the growth of the meningococcus, concluding from her investigations that the primary cultivation of this micro-organism in vitro is possible only in the presence of certain accessory growth factors present in blood, serum, milk and other animal fluids, and probably also in vegetable tissues. She regards the essential substances as moderately stable toward heat. In this country, Davis[3] has offered further evidence that something comparable with vitamin phenomena may appear in bacterial nutrition. His attention has been directed to the growth of hemophilic bacteria which require hemoglobin for their development. For optimal growth, however, something more seems to be essential, and the added factor, not found in synthetic mediums, is found in foreign bacteria, and in fresh animal and plant tissues. How the substances thus furnished act is quite as obscure as is the answer to the question of their chemical nature. Davis suggests that they may function, in the case of hemophilic bacilli, to render iron more available; and he ventures the further suggestion that the action of vitamins in animals and higher plants may concern or somehow control the metabolism of certain elements like iron, phosphorus, calcium or iodin, as well as possibly the protein metabolism. It is perhaps too early in the period of collecting facts in this field of study and critically evaluating them to indulge in elaborate hypotheses; but the fascinating mystery of the vitamins is penetrating into many avenues of biologic inquiry. Science must guard against undue enthusiasm when so much uncertainty and contradiction still exist.

1. Loeb, J., and Northrop, J. H.: Nutrition and Evolution, Second Note, Jour. Biol. Chem., 1916, **27**, 309.
2. Lloyd, Dorothy: Jour. Path. and Bacteriol., 1916, **21**, 113.
3. Davis, D. J.: Food Accessory Factors (Vitamins) in Bacterial Culture, with Especial Reference to Hemophilic Bacilli, I, Jour. Infect. Dis., 1917, **21**, 392.

IMPROVEMENTS IN FOUR YEARS AT YALE UNIVERSITY SCHOOL OF MEDICINE

About five years ago, Yale University School of Medicine had acquired by gifts and bequests a total of less than $400,000 for endowments; it lacked suitable quarters for the clinical departments, and had only limited teaching facilities in the New Haven Hospital. A committee made a careful investigation, and a campaign for improvement was begun. A close affiliation between the medical school and the New Haven Hospital was secured through a generous gift from the Brady family, who gave $125,000 for the Anthony N. Brady Memorial Laboratory to be erected on the grounds of the New Haven Hospital. The Brady family also gave $500,000 for its endowment, subject to the raising of an additional $2,000,000 for the medical school. The General Education Board promised to add $500,000 to this sum, providing the main clinical departments were put on the full time basis, and numerous other gifts, ranging from small amounts up to $400,000, were made, so that recently President Hadley announced that gifts of over two and a half million dollars had been received. Of this sum, $125,000 was for the new laboratory building; the balance of the funds was to provide for instruction and research. Not only has the medical school greatly increased its endowment, therefore, but it has also provided a new laboratory building for pathology, bacteriology and pathologic chemistry, obstetrics and gynecology, and clinical medicine and, at the same time, has secured a teaching hospital by the closer relationship with the New Haven Hospital. Under the new arrangements the members of the attending staff of the hospital are appointed on the nomination of Yale Corporation. Incidentally, Yale University School of Medicine is doing its part in solving problems connected with the war. Its departments of physiology, pathologic chemistry and pathology, particularly, have been aiding the government in providing gas masks for the American troops and in conducting experiments leading to the reduction of fatalities from gas warfare. This country still has an abundance of medical schools, but there is always room for those which, like this, are amply endowed and equipped.

ANOTHER TESTIMONIAL SMASHED

This from the *Congressional Record* of April 6, Hon. William E. Mason of Illinois speaking:

". . . I have one rule of life, and that is never to get up mad in the morning. It is what keeps me well and a little stout. . . ."

And we thought it was "Nuxated Iron"!

The Surgeon-General's Appeal For 5,000 Additional Medical Reserve Corps Officers

The War Committee of the AMERICAN MEDICAL ASSOCIATION met at the Association building, Chicago, April 16, to consider and act on the proposition contained in the letter of the Surgeon-General of the Army addressed to the AMERICAN MEDICAL ASSOCIATION, and printed in THE JOURNAL last week, page 1100.

The committee, acting under the authority of the Board of Trustees, confirmed by the House of Delegates of the AMERICAN MEDICAL ASSOCIATION, in behalf of the medical profession of the United States, accepted the obligation. In undertaking to secure the additional 5,000 physicians, the Association confidently anticipates the hearty, active, patriotic cooperation of the officers of every state association, the councilors of every district and of the officers and members of every county society, as well as of every loyal physician, whether a member of the organization or not.

As stated in his communication, it is the desire of the Surgeon-General that the securing of these additional 5,000 medical officers shall be accomplished without serious hardship "upon any community, manufacturing concern, or other civil activity by taking from such community, manufacturing concern or other civil activity physicians whose services are needed for the efficient and competent care of the civil population or the employees of large concerns." It is necessary, therefore, as a preliminary, that the actual conditions existing in all parts of the country shall be known: the number of physicians who have already accepted commissions and the number still available in every community. This requires a complete survey of the situation. Such a survey is in course of preparation and will be published within a short time as a supplement to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. It will include the names of those who have accepted commissions in the Army and in the Navy. These names will be listed alphabetically by states, counties and towns. The survey will also indicate the size of the county, the population, the number of physicians, the number under 55 years of age, and other important data. The information will be tabulated for each state by counties so that it can be seen at a glance what counties or communities have or have not furnished their quota. A similar tabulation of the data by states for the whole country will be included. This survey will provide a basis for active, intelligent, cooperative effort.

That there may be a full agreement as to procedure and complete harmony in all that is done in the various states, the committee desires the counsel and advice of the state associations. It has authorized, therefore, the calling of a meeting of the secretaries of state associations to be held at the Association headquarters in Chicago, April 30. This meeting will provide an opportunity for discussing the conditions existing in each state and of learning what, if any, modification of the proposed general plan of procedure will be necessary to secure practical results in every state.

Considering the whole problem of supplying not only the immediate but also the future needs, the committee deliberated on the advisability, or necessity, of calling for a voluntary draft of all physicians under 55 years of age. The proposition, briefly outlined, means that every physician in active practice shall volunteer as a member of the Medical Reserve Corps, and be subject to call for military or civilian activities as he may be qualified and as conditions and necessities may require. The committee deems this extreme measure unnecessary for the present at least.

In conclusion, it will be recalled that when our country entered the war, the AMERICAN MEDICAL ASSOCIATION formally and officially offered to the Government its services and facilities for such assistance as may be in its power to render. The Association now gladly and promptly undertakes this new task, acting for the national, state and county organizations including over 81,000 members, using THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, in short, its entire machinery, to assist in organizing the medical profession of the United States for the war.

In the meantime, while the proposed survey is being completed, and arrangements are perfected for a general, systematic appeal addressed especially to those communities whose physicians have not yet made application for commissions in the Medical Reserve Corps in accordance with the average quota, every physician, individually, should consider carefully his personal responsibility. If it is possible for him to do so he should make application at once for a commission.

NOTE.—An application blank and a list of the examining boards will be sent by The Journal on request.

Medical Mobilization and the War

Honor for Surgeon-General Goodwin

It is announced that the King has appointed Major-Gen. (temporary lieutenant-general) Thomas H. J. C. Goodwin, C. M. G., D. S. O., director-general of the army medical service to be an additional member of the military division of the third class, or Companions, of the Most Honorable Order of the Bath.

Medical Officers Wounded in Action

The following medical officers are reported as recently wounded in action: Lieuts. Daniel H. Lawler of Baltimore, Samuel Miller of Manchester, N. H., and William Michel of Frostburg, Md., on the British front during the recent drive of the Germans.

"Fit to Fight"

A film entitled "Fit to Fight" has been prepared through cooperation between the Army Medical Department, the War Department, the American Social Hygiene Association, the Commission on Training Camp Activities, and the Metro Picture Corporation. The photographic and laboratory work has been done by the Army Medical Museum. The film is a part of the campaign to combat venereal diseases. It is now being shown in the cantonments. Requests for the use of the film are being received by the Medical Department from educational institutions, and will be responded to as promptly as possible.

The Incidence of Venereal Diseases

The Surgeon-General has issued a statement relative to the number of cases of venereal disease in various parts of the Army. The annual rate for the forces in France is 44.2 per thousand. If the number of cases of venereal disease during the week ending Sept. 28, 1917, were continued for the whole year, the number per thousand men for the three armies would be: Regular Army 80.5, National Guard 149.2, and National Army 387.6. The best rate made by our regular Army prior to the war was the actual rate of 1916, of 91.23 per thousand. The best week in our present Army was that ending Dec. 14, 1917, when the annual venereal disease rate per thousand for our regular Army was 69.7, National Guard 44.6, and National Army 74.3. The worst week was that of Jan. 11, 1918, when the rates were: Regular Army 97.8, National Guard 89.9, and National Army 54.4.

Personnel of the Medical Department

For the week ending April 12, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS, 796, including 1 major-general, 66 colonels, 102 lieutenant-colonels, 198 majors, 2 captains and 427 lieutenants.

MEDICAL RESERVE CORPS: 18,583, including 1,156 majors, 4,368 captains and 13,059 lieutenants. On active duty: 15,759, including 1,054 majors, 3,878 captains and 10,827 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,211, including 16 lieutenant-colonels, 250 majors, 151 captains and 794 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 106, including 3 brigadier-generals, 11 colonels, 84 lieutenant-colonels and 9 majors.

DENTAL CORPS, 209, DENTAL RESERVE CORPS, 5,197, of whom 1,363 are on active duty; DENTAL CORPS, N. G., 259; VETERINARY CORPS, 18; VETERINARY RESERVE CORPS, 1,429, of whom 820 are on active duty; VETERINARY CORPS, N. G., 53; VETERINARY CORPS, N. A., 373; SANITARY CORPS, 1,026, and AMBULANCE SERVICE, 153, constitute the remainder of the commissioned personnel.

The DISCHARGES in all branches of service to date are:

Causes	Number M.R.C.	M.C.N.G.	D.C.N.G.	San. C
Physical disability	522	41	7	5
Inaptitude	206	15	0	1
Other branches of the service	429	61	7	59
Domestic troubles	51	1	0	1
Resignations	147	45	5	8
Needed by the community	37	1	0	0
Deaths	45	3	0	0
Dismissals	3	2	0	0
	1,440	169	19	74

NEWS OF THE CANTONMENTS

Eighty-First Division, Camp Jackson, Columbia, S. C.

APRIL 9, 1918.

If there was ever a transformation in a place, it is in the site occupied by Camp Jackson. Everything that is conducive to health—climate, soil, drainage, water—is found here; everywhere activity is increasing and more efficient. The health of the division is good. System and uniformity of action are increasing. The base hospital is expanding to 2,600 beds. There are Red Cross buildings, the Y. M. C. A., and the Hostess House. Officers' quarters are enlarged. Many new officers are arriving every day.

ROENTGEN-RAY SERVICE

Capt. Harrison A. Greaves of Philadelphia is chief of the roentgen-ray department. A powerful 10 kilowatt interrupterless machine, vertical and horizontal fluoroscopes, plate changers and gas and Coolidge tubes, and a localizer for foreign bodies in the eye are included in the excellent equipment. Hundreds of men have been examined for tuberculosis and heart lesions. Stereoscopic plates are made whereby the most delicate lesions of early tuberculosis may be detected. Nearly a thousand examinations of the teeth have been made for focal infection, filling defects before and after, abscesses, and impacted molars.

All the men referred by the various specialists, tuberculosis, medical, surgical, eye, ear, nose and throat, have been successfully examined.

PERSONAL

Major C. L. Roberts, commanding officer, has been promoted to lieutenant-colonel.——Major F. P. Quain of Bismarck, N. D., who organized No. 1 Base Hospital, Surgical Unit, is chief of the surgical service.——Lieutenant Van Korb, assistant in the roentgen-ray department, has been promoted to captain.——Capt. John W. McConnell, in charge of the ear, nose and throat section, has received his promotion as major.——Captain Meredith was promoted to major.——Capt. Reik, surgeon, of Baltimore, has been assigned to temporary duty as assistant in the ear, nose and throat section.——Major Walter Bensel has been promoted to lieutenant-colonel.——Major Thomas J. Burrage of Maine is assistant to Major Herrick in the medical service.——Capt. Carl Mitchell of Benton Harbor, Mich., is an assistant in the surgical service.——Lieutenant Scovell, chief dental surgeon, has been promoted to lieutenant-colonel.——H. Judson Lipes, major, M. R. C., Albany, N. Y., formerly a professor at Albany Medical College, is now on the surgical service at the base hospital, Camp Jackson.——Dr. Blanche F. Greaves, wife of Capt. Harrison A. Greaves, chief of the roentgen-ray section, who has been visiting Columbia at Dr. A. E. Shaw's beautiful and historic mansion, has returned to Philadelphia.

If one may speak of the moral and religious tone of an army in the making, Camp Jackson has it. Respect for authority, willingness to do the right thing, and avoidance of the wrong are seen throughout the whole cantonment. Everything from one end of the cantonment to the other is "'Tention!" Discipline, instant and willing obedience, and will to win the war for the freedom of the world are everywhere in evidence. Let every one in America from 16 to 60 save, serve and sacrifice. There is one way in which every one in America can help—buy Liberty Bonds! This is the way to save your home and your family from destruction and slavery.

Camp Zachary Taylor, Eighty-Fourth Division, Louisville, Ky.

APRIL 15, 1918.

MAJOR BOARD EXONERATED

Exoneration of Major Milton Board, Medical Reserve Corps, a Louisville physician, who was charged with negligence as result of the death of Private Otha Murray, is announced in court martial orders made public yesterday at Camp Zachary Taylor. The court acquitted Major Board on all specifications of the charge against him and the acquittal is approved by Major-Gen. Harry C. Hale and the legal reviewing authorities. The specific charge against Major Board was that he "negligently and without due regard for the health and safety of Private Otha Murray, Three Hundred and Thirty-Sixth Infantry, recommended and obtained his discharge and sent him home to die." The court makes no comment on the case but simply finds that Major Board was not guilty of negligence in any particular.

SANITARY INSPECTOR NAMED

Upon recommendation of Lieut.-Col. William Smart, division surgeon, Capt. Charles E. Libby, Medical Reserve Corps, was appointed sanitary inspector at the field artillery range at West Point, Ky.

The medical attachment of the First Provisional Regiment (colored) is being organized.

DISEASED MEN REMAIN

Notice has been given by the Adjutant-General of the Army that venereal diseases are included in the list of communicable diseases which prohibit soldiers being sent from one station to another, whether it be to another camp or cantonment or a port of embarkation for transportation overseas. Medical officers are to examine all men before they are transferred or sent away from camps. No man having or suspected of having a communicable disease will be sent away from his station.

CUBICLE SYSTEM

On recommendation of this board appointed by Major-Gen. Harry C. Hale, the cubicle system has been adopted in the One Hundred and Fifty-Ninth Depot Brigade and 20,000 yards of muslin have been ordered to put the method into effect.

Experience has shown that most of the sickness starts in the depot brigade, where the incoming quotas are quartered. Every precaution has been taken to detect symptoms as soon as they develop and to prevent spread of the diseases, but it was deemed advisable to resort to even more stringent measures.

Three-foot screens will separate the cots of the men in barracks. At the mess tables screens will divide the center of the table so that if a man coughs his breath will not be inhaled by the comrade sitting opposite him. Men will be assigned to regular seats at tables and space will be left between each.

It is expected that this system will, to a large degree, check respiratory diseases. The recruits will be placed in groups of fifty and except when they are drilling in the open where fresh air will reduce to a minimum the hazard, the members of one group will not be permitted to associate with those of another group.

Should communicable diseases develop in a group the medical officers can quickly locate the source of trouble and remedy it. They will know exactly who has been exposed. These contacts will be moved to quarantined barracks. Capt. David M. Roberg is supervising the installation of the new system.

Another new method was inaugurated to handle contacts in the case of communicable disease. Immediately after the discovery of a case of measles, diphtheria, scarlet fever, pneumonia, or spinal meningitis in an organization its commander will segregate the men who have slept on bunks contiguous to the sick man, those who have always sat next to him at mess and the men with whom he associated and send them with their bedding and kits to report at the headquarters of the first group, One Hundred and Fifty-Ninth Depot Brigade, where they will be assigned to quarters in these buildings, and there will be rigidly quarantined.

The cubicle system was introduced at the base hospital recently with good results.

In addition to this, every one in the observation ward at the base hospital, officers, attendants and patients, is required to wear a face mask, and the Red Cross has been working vigorously to supply the many masks needed to carry out this ruling.

The plan of having the men examined daily by medical officers of their outfits has reduced sickness to some extent, but the greatest benefit is that the ailments are diagnosed when the first symptoms appear and before the patients' condition has reached a serious state.

Medical officers are leaving nothing undone in their endeavor to safeguard the health of the soldiers. It has been found that many of the diseases are brought in by selects who come from various sections of Kentucky, Indiana and Illinois, and from all walks of life. Although the country boy is considered healthier and stronger than the city chap, he is more susceptible to many communicable diseases, because he is virgin material. Most persons reared in thickly settled places have mumps, chickenpox, measles and other "children's diseases" when young and are immune, while the selects from the country who escaped them in childhood easily contract these ailments.

STREPTOCOCCUS VIRULENCE

The results in the recent streptococcus hemolyticus pneumonias at the hospital remain very serious. In a series of ten cases nine died. Unfortunately the War Department has recently issued an order limiting necropsies to cases in which "military necessity" makes it essential it should be done, and then only on order of the commanding general. As a result of this order it has been impossible for these recent virulent cases to be studied as they should be studied. The probable explanation is the increased virulence of the organism after it has grown through successive generations, with the soldier as the medium.

The chiefs of the medical service of a number of base hospitals have recommended the annulment of this rule as to necropsies, so that these cases can be properly studied.

PERSONAL

Lieut.-Col. John H. Allen, after being exonerated by a court martial at Camp Zachary Taylor, is serving in the same capacity at the local camp as he did before the trial. Lieutenant-Colonel Allen is division surgeon and considered one of the ablest officers at the local camp. The result of the trial was received with satisfaction by his friends and he has received many congratulations on his complete exoneration. Testimony at the trial showed that Lieutenant-Colonel Allen is not only a proficient surgeon but a man of high character as well.——Lieut. Arad Shaper, Medical Reserve Corps, who has been stationed with the Six Hundred and First Engineers at Camp Laurel, Md., has been ordered to Louisville to report to the commanding general at Camp Zachary Taylor for duty in the base hospital, the War Department announced today.——Lieut. John K. Norton reported from Camp Greenleaf, Chickamauga, in compliance with a War Department order and was assigned as chief psychologic examiner at the base hospital.——The following medical officers are transferred to Base Hospital Unit No. 25 at Camp Sherman for duty: Capt. Charles H. Paul, First Lieuts. Charles E. Kiely, Merrick F. McCarthy and George I. Thatcher.

Eighty-Sixth Division, Camp Grant, Rockford, Ill.

APRIL 8, 1918.

EXAMINATION OF NEW DRAFT

The following change has been made in the routine of examination of the newly drafted arrivals in camp: the regimental medical officers examine the men as usual, being immediately followed by members of the tuberculosis examining board under Major Wheaton, who examine the men in the same room. They reject all frank cases at once and refer suspicious cases to the special board. These examiners are followed by the cardiovascular examiners, under Captain Pardee, and by the neuropsychiatrists under Major Fell, with similar methods of procedure. The men who are to be examined further because of suspected defects are sent with Form 1010 to the base hospital for closer examination by the special examiners, who are the chiefs of the various services in the hospital. These officers make their report in the form of a second indorsement on Form 1010 and these forms then come to the division surgeon for final judgment, before going to the chief mustering officer.

Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

APRIL 6, 1918.

REMEDIABLE DEFECTS

The various military organizations of the camp have been seriously handicapped in their work at times by men within their ranks who were physically unable to stand the pace of the average man, but yet were not enough disabled to be discharged from the Army. To remedy this condition there has been instituted at this camp, a remediable defects battalion. Any man, whom the medical officer may decide, after careful examination, to be unfit for full duty, but whose defects are remediable, is now placed in this battalion. After being placed in the battalion, a man is carefully gone over by the medical officers of the organization, and a routine schedule of work and exercise is prescribed for him. Also any shoe corrections, or things of similar character that are indicated, are furnished. As the man improves, it is hoped to change him from a group of one grade to a more advanced grade, the idea being to ultimately fit as many men as possible for full duty. When this is impossible, after a man has been thoroughly tried out, he will be recommended for

whatever special duty the officers of the battalion may think him to be fitted for. Care will be taken to avoid over-fatigue. The results of this move will be watched by both Line and Medical Officers with a great deal of interest.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending April 5, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (DISEASE ONLY):
   - All Troops 1,685.1
   - National Guard Camps 1,478.3
   - National Army Camps 1,943.7
   - Regular Army 1,518.5
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:
   - All Troops 47.8
   - National Guard Camps 41.4
   - National Army Camps 54.3
   - Regular Army 43.5
3. ANNUAL DEATH RATE PER 1,000 (DISEASE ONLY):
   - All Troops 11.6
   - National Guard Camps 5.9
   - National Army Camps 14.1
   - Regular Army 13.6

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING APRIL 5, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal	Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
Wadsworth	5	..	..	14	5	..	2	4	1,313.9	28.9
Hancock	7	..	1	8	3	1	1	4	472.1	26.4
McClellan	4	..	2	15	1	..	...	1	904.2	30.3
Sevier	7	..	..	23	5	1	...	3	1,639.3	37.7
Wheeler	6	..	7	32	...	..	...	2	1,159.2	38.7
Logan	9	..	2	40	6	..	...	2	1,674.3	44.1
Cody	14	..	..	4	1	..	...	10	1,208.3	32.3
Doniphan	17	..	..	12	...	..	...	6	2,007.6	43.1
Bowie	32	..	..	70	...	..	...	5	4,174.6	78.2
Sheridan	3	..	..	57	8	..	1	1	811.9	28.4
Shelby	5	..	2	12	...	..	...	1	1,132.3	50.8
Beauregard	2	..	16	38	1	1	...	3	1,361.6	53.1
Kearny	...	..	1	1	...	..	7	0	1,186.5	45.9
Devens	28	..	..	65	6	1	2	6	1,628.5	43.0
Upton	16	..	..	74	8	..	15	9	919.5	27.7
Dix	6	..	..	50	10	..	7	0	1,264.8	38.3
Meade	4	..	..	7	13	..	4	2	547.7	30.2
Lee	12	..	..	495	9	1	...	1	1,911.6	54.8
Jackson	20	..	4	357	32	4	...	8	1,714.4	52.0
Gordon	8	..	1	142	14	1	1	2	1,630.3	41.6
Sherman	10	..	..	81	5	..	21	7	1,632.7	53.5
Taylor	30	..	..	43	87	..	...	13	2,062.7	69.7
Custer	11	..	..	116	5	..	14	16	2,295.1	39.0
Grant	4	..	..	11	11	6	...	5	802.4	26.0
Pike	29	..	..	79	14	1	8	17	2,851.8	74.4
Dodge	33	..	..	99	24	1	15	26	3,093.7	106.5
Funston	19	..	1	109	16	2	6	10	1,702.5	76.2
Travis	35	1	5	41	44	1	1	6	3,772.9	72.7
Lewis	15	..	..	167	19	..	23	1	4,100.6	87.0
Northeastern Dept.	2	..	..	24	...	..	1	3	2,200.0	44.4
Eastern Dept.	9	..	2	20	14	..	1	2	1,108.2	33.0
Southeastern Dept.	3	..	1	21	27	..	2	6	1,561.7	45.8
Central Dept.	29	1	..	39	17	..	15	13	1,907.4	47.7
Southern Dept.	28	..	1	80	13	3	7	8	1,988.6	50.3
Western Dept.	5	..	..	25	14	..	4	4	1,414.6	30.4
Aviation, S. C.	45	1	5	104	70	8	42	27	1,608.4	41.3
Camp Greene	9	1	3	39	22	1	2	3	745.3	26.1
Camp Fremont	2	..	2	32	18	..	...	2	1,361.8	57.4
El Paso	1	..	..	11	5	..	...	0	989.2	7.2
Columbus Barracks	7	..	..	7	1	..	1	4	1,856.2	63.3
Jefferson Barracks	14	..	..	35	10	..	8	8	2,394.7	110.3
Fort Logan	9	..	..	2	...	..	7	7	1,937.4	78.2
Fort McDowell	...	..	..	2	7	..	...	2	1,703.4	50.9
Fort Slocum	5	..	..	11	2	..	...	0	1,113.6	41.6
D. B. Alcatraz	...	..	..	....	...	..	...	0	.....	....
D. B. Fort Leavenworth	...	..	..	1	...	..	...	4	1,440.0	40.3
A. A. Humphreys	1	..	..	2	...	..	...	0	577.8	7.4
J. E. Johnston	4	..	..	49	8	1	...	2	1,440.4	41.4
Camp Merritt	20	1	4	90	4	..	5	10	1,636.4	56.0
Camp Stuart	31	..	..	68	12	2	1	11	1,411.8	55.5
West Point, N. Y.	...	..	..	2	1	..	...	0	1,000.6	14.2
Edgewood-Aberdeen	1	..	..	....	8	..	4	0	1,481.3	34.9
Provision Depot for Corps and Army Troops	7	..	..	7	49	..	1	2	2,235.3	46.5
Camp Holabird	...	..	..	1	...	..	...	0	.....	....
Camp Raritan	...	..	..	....	2	..	...	0	1,054.7	21.2
Fort Thomas	4	..	..	4	2	..	...	1	3,234.6	79.5
Natl. Guard Depts.	3	..	..	15	11	..	...	1	.....	....
Natl. Army Depts.	13	..	2	160	50	1	40	5	.....	....
Total (all troops).	643	5	62	3,113	714	37	269	206	1,685.1	47.8

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending April 5, 1918	Regulars in U. S., Week Ending April 5, 1918	National Guard, All Camps, Week Ending April 5, 1918	National Army, All Camps, Week Ending April 5, 1918	Expeditionary Forces, Week Ending Mar. 28, 1918
Pneumonia	26.6	29.1	18.4	31.1	40.4
Dysentery	0.3	0.5	0.0	0.1	0.5
Malaria	2.7	2.2	5.1	1.2	0.0
Venereal	128.9	83.3	54.0	215.0	48.7
Paratyphoid	0.0	0.0	0.0	0.0	0.0
Typhoid	0.04	0.0	0.0	0.0	0.0
Measles	29.5	37.7	5.0	35.2	9.2
Meningitis	1.5	1.8	0.5	2.0	1.7
Scarlet fever	11.1	10.0	1.8	13.0	15.2

CORRECTION

Under "Orders to Officers of the Medical Reserve Corps," issue of February 2: *To San Antonio, Tex.*, Aviation Section, Signal Corps, Kelly Field, for duty, Lieut. ROBERT W. BELL, Carriso, instead of ROBERT W. DELL.

PROMOTIONS

Major JOHN J. O'REILLY has been recommended as Lieutenant-Colonel in the Medical Corps, National Guard.

Captains of the Medical Reserve Corps Recommended for Promotion as Majors Since March 1, 1918

THEODORE JACOB ABBOTT, New York City; SCOTT DUDLEY BRECKINRIDGE, Washington, D. C.; RUSSELL LAFAYETTE CECIL, New York City; JOHN CHRISTIAN DALLENBACH, Champaign, Ill.; DAN HOLTON EATON, Kalamazoo, Mich.; JAMES JOSEPH GOODWIN, Clinton, Mass.; EDWARD J. GORDON, Wyncotte, Pa.; CHARLES HERBERT HOLT, Pawtucket, R. I.; FREDERICK CHARLES HUFF, Sturgeon Bay, Wis.; H. M. MALEJAN, Ann Arbor, Mich.; FORDYCE H. McCABE, Wellman, Iowa; EDWARD CLAY MITCHELL, Memphis, Tenn.; WALTER ASBURY NEWMAN, Manassas, Va.; CHARLES ELVIN SISSON, Norwalk, Cal.; LESLEY HINCKLEY SPOONER, Boston, Mass.; CARL C. VOGEL, Elroy, Wis.; GEORGE WATERS, Memphis, Mich.; and PAUL GERHARDT WOOLLEY, Cincinnati, Ohio.

First Lieutenants of the Medical Reserve Corps Recommended for Promotion as Captains Since March 1, 1918

CHARLES SHEWELL ABBOTT, Philadelphia, Pa.; J. F. ABEL, Waynesville, N. C.; NOAH BUNYON ADAMS, Murphy, N. C.; ALBERT AUGUST AXLEY, Butternut, Wis.; RAYMOND ARTHUR BABCOCK, Willits, Calif.; JOSEPH S. BALDWIN, Brooklyn, N. Y.; JOHN JACOB BEARD, Cobleskill, N. Y.; LOUIS BERLIN, Brooklyn, N. Y.; LAWRENCE F. BOLAND, Stone, Ky.; KARL MURDOCK BOWMAN, White Plains, N. Y.; DELANE STOW CALHOUN, Ruston, La.; WILLIAM L. CARMAN, Paint Lick, Ky.; MICHAEL LESTER CASEY, Rochester, N. Y.; JONATHAN SEBASTIAN COKER, Gardner, Fla.; JAMES ELMORE COOKE, Mart, Tex.; JOHN L. EDWARDS, Randall, N. Y.; ANDREW ENGBERG, McPherson, Kan.; DOWELL GANN, Jr., Little Rock, Ark.; ANDREW JACKSON GOODWIN, Rochester, Minn.; LOUIS JEAN GOUGUET, San Francisco, Calif.; CLARENCE F. GRAHAM, Albany, N. Y.; JAMES FRANCIS GRATTAN, New York City; HORACE WILLIAM GRAVES, Elm Springs, Ark.; WILLIM HENRY GREENE, Camden, W. Va.; GEORGE AUGUST GRIOT, St. Louis, Mo.; FLEETWOOD GRUVER, Nashville, Tenn.; OLIVER CROMWELL HARGREAVES, Chicago; FRANK WARD HICKIN, Cleveland, Ohio; WILLIAM GORDON HUNTER, Augusta, Ga.; CHARLES WILBUR HYDE, Washington, D. C.; CYRUS JACOBOSKY, Wilkes-Barre, Pa.; JOSEPH JAMES KOCYAN, Plains, Pa.; WALTER ESTELL LEE, Philadelphia, Pa.; JAMES DAVIS LEWIS, Scranton, Pa.; GEORGE VICTOR LITCHFIELD, Abingdon, Va.; THOMAS LITTLEWOOD, Pittsfield, Mass.; FREDERICK ANTHONY LOBB, Hawley, Pa.; CLIFFORD W. MACK, Livermore, Calif.; JAMES E. McMEEL, Chicago; RICHARD L. McNEER, Philadelphia, Pa.; FREDERICK WM. McSORLEY, Salem, N. Y.; LON B. MOREMEN, Irvington, Ky.; WALTER NEWTON MUNDELL, Hutchinson, Kan.; FRANK MARION PRIFER, Chicago; MARTIN HAYWARD POST, Jr., St. Louis, Mo.; HARRY M. PRICE, Washington, D. C.; ARTHUR GARDNER QUINN, New York City; VELPEAU HILL RAGSDALE, Bessemer, Ala.; FRED RANKIN, Baltimore, Md.; ABRAM KARL REEVES, East Orange, N. J.; CECIL H. ROSS, Mobile, Ala.; TRUMAN G. SCHNADEL, Philadelphia, Pa.; JOHN WILLIAM SHEETZ, Columbus, Ohio.; DANIEL GLEN SMITH, Baltimore, Md.; RALPH E. STEVENS, Sanford, Fla.; WALTER DAVIS STEVENSON, Quincy, Ill.; WALTER M. STOUT, Indianapolis, Ind.; EDWARD AUGUSTUS SWEET, Helena, Mont.; LEWIS HENRY TAFT, New York City; ADOLPH MAURICE TEIXLER, Chicago; WILBORN A. UPCHURCH, Atlanta, Ga.; HOWARD LOCKE VAIL, Dalton, Pa.; and CLIFFORD C. WEHN, Penfield, Ill.

COMMISSIONS ACCEPTED

Physicians Having Accepted Commissions as Majors in the Medical Reserve Corps Since March 1, 1918

DUDLEY FULTON, Los Angeles, Calif., and THOMAS BRAY SPENCE, Brooklyn, N. Y.

Physicians Having Accepted Commissions as Captains in the Medical Reserve Corps Since March 1, 1918

GAIL DARWIN ALLEE, Lamar, Mo.; McRAE C. BANKS, Raleigh, W. Va.; ROBERT W. CLANCY, Medford, Ore.; GARRETT M. CLOWE, Schenectady, N. Y.; JOHN H. EVANS, Virgil, N. Y.; FRANK DOIG FRANCIS, Chicago; CLEMENT JACOB HAILPERIN, Newark, N. J.; JOHN GREENWOOD JENNINGS, Boston, Mass.; CHARLES RICHARD LOCKWOOD, Kankakee, Ill.; DAVID B. LUPPER, Boston, Mass.; JOHN SILLIMAN MACNIE, Minneapolis, Minn.; JAMES BOYD MASON, London, Ky.; SAMUEL M. MAUNEY, Earl, Ark.; WILLIAM WALTER McMILLAN, Marietta, O.; RAOUL GASTON PROVOST, New Bedford, Mass.; HARRY LAVINGTON PURDY, New York City; HARRY CAMPBELL REYNOLDS, Passaic, N. J.; JOSEPH HARRISON SHELTON, Kingsville, Tex.; JOHN FLETCHER TAYLOR, Buda, Ill.; FRANCIS BERGER TRUDEAU, Saranac Lake, N. Y.; HERBERT GAMES VAUGHAN, Oak Park, Ill.; M. C. WINTERNITZ, New Haven, Conn.; and FREDERICK ISAIAH YATES, Covington, Ky.

Physicians Having Accepted Commissions as First Lieutenants in the Medical Reserve Corps Since March 1, 1918

THEODORE CARL HENRY ABELMANN, Watertown, Wis.; DALLAS EDWARD ABRAHAM, Louisville, Ky.; LLOYD KENNETH BABCOCK, Buffalo, N. Y.; IRWIN WOODWARD BACH, Pontiac, Ill.; JOHN M. T. BASKETTE, Indianapolis, Ind.; JOHN WILLIAM CALLAHAN, Norwich, Conn.; CHARLES SOLOMON CANTOUGH, Reading, Pa.; MARSHALL BURR CATLETTE, Fort Wayne, Ind.; SAMUEL EDWARD CHALFEN, Cambridge, Mass.; FREDERICK ALBERT COCHRAN, Jr., Oklahoma, Okla.; LLOYD BENJAMIN CROW, San Francisco, Calif.; THEODORE HUBERT DEDOLPH, Braham, Minn.; MATTHEW S. ERSNER, Philadelphia, Pa.; RALPH FALK, Boise, Idaho; LEE ROY FARMER, Lees Summit, Mo.; PAUL WILLIAMS FETZER, New York City; RICHARD MICHAEL FIELD, Brooklyn, N. Y.; NIEL A. FOGG, Freeport, Me.; THERON EARLE FULLER, Texarkana, Ark.; HUGH VINCENT GILLSON, Paterson, N. J.; ADOLPH ABRAHAM GURIN, Atlantic City, N. J.; JAMES K. GUTHRIE, Rockwell, Ia.; OLIVER LESLIE HAMBRICK, Nashville, Tenn.; HENRY HARRIS, Montclair, N. J.; JAMES HARVILL HITE, Nashville, Tenn.; JOHN FRANKLIN HOLTZ, Plymouth, Ohio; WILLIAM FRANCIS HOLZER, Philadelphia, Pa.; JAMES MORRISON HUTCHESON, Richmond, Va.; FREDERICK P. LEE, Rosebank, N. Y.; WILLIAM LEISER, 3d, Reading, Pa.; JOHN ALBERT MALLEY, Monroe City, Mo.; JOHN RADNEY MANLEY, Prolona, Ga.; JACOB KEENE MARKS, Philadelphia, Pa.; JAMES S. McAVIN, Omaha, Neb.; JOSEPH LOVERING McCABE, Philadelphia, Pa.; BROOKS W. McCUEN, Cohoes, N. Y.; JAMES RUSSELL MOORE, Cleveland, Ohio; WILLIAM C. MUNLY, Portland, Ore.; EDWIN A. NOLL, St. Louis, Mo.; MORRIS LOUIS POLLACK, Brooklyn, N. Y.; HENRY BENJAMIN RAMAN, Farmingdale, Ill.; REUBEN LESTER RICHARDSON, Nashville, Tenn.; RODNEY W. ROWELL, Stamford, Conn.; HERBERT R. E. SHOEMAKER, San Francisco, Calif.; HARRY EVERETT SHOOT, Portland, Ore.; LESTER ALVIN SMITH, Chicago; HORACE KENNEDY SOWLES, Boston, Mass.; ALBERT LEE SPAULDING, Louisville, Ky.; ROLAND TONEY TRAVIS, Dallas, Tex.; WAVERLY STAFFORD TUCKER, Hardware, Pa.; EDWARD A. TWIST, Lackawanna, N. Y.; THOMAS HARRISON VAN CAMP, Boston, Mass.; ADOLPH TUKUSTUS WALKING, Philadelphia, Pa.; FREDERICK WASHNITZER, Brooklyn, N. Y.; ALLEN B. WHEELIS, Marion, La.; LEE R. WILHITE, Oklahoma, Okla.; FRANK ARTHUR WILL, Des Moines, Iowa; WALTER B. WILEY, Jr., Boston Mass.; ERNEST L. WILSON, Bolton Landing, N. Y.; JOHN MICHAEL WILSON, Stoutsville, Mo.; JOHN CARLYLE WITHERINGTON, Munford, Tenn.; ALFRED WOODHOUSE, Newark, N. J.; WILLIAM M. WRITT, Farrell, Pa.; HOMER CLYTUS WYSONG, Beech Grove, Tenn.; WILLIAM WALTER YOUNG, Atlanta, Ga., and EDWARD L. ZIMMERMAN, Eugene, Ore.

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Army Medical School for examination to determine his physical fitness for active service, and on completion *to his home*, Major WILLIAM F. CARTER.

To Camp Beauregard, Alexandria, La., *Camp Logan*, Houston, Texas, *Camp Travis*, Fort Sam Houston, Tex., for consultation, and on completion *to his proper station*, from Camp Shelby, Lieut.-Col. JAMES E. BAYLIS.

To Camp Crane, Allentown, Pa., base hospital from Camp Hancock, Lieut.-Col. ROY C. HEFLEBOWER.

To Camp Custer, Battle Creek, Mich., *Camp Sherman*, Chillicothe, Ohio, *Camp Zachary Taylor*, Louisville, Ky., for consultation and on completion *to his proper station*, from Camp Grant, Lieut.-Col. HENRY C. MICHIE. *To Camp Custer*, base hospital, from Camp Crane, Major WILLIAM W. VAUGHAN.

To Camp Dix, Wrightstown, N. J., *Camp Upton*, Long Island, N. Y., *Camp Devens*, Ayer, Mass., for consultation, and on completion *to his proper station*, from Camp Meade, Lieut.-Col. LLOYD A. KEFAUVER.

To Camp Dodge, Des Moines, Ia., base hospital, from Camp Dodge, Lieut. FRANK S. MATLACK.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Camp Doniphan, Major WILLIAM S. LAWRENCE.

To Camp Eustis, Lee Ball, Va., for inspection, and on completion *to his proper station*, Lieut. EDGAR E. HUME.

To Camp Kearny, Linda Vista, Calif., base hospital, from Camp Beauregard, Lieut.-Col. GEORGE F. LULL.

To Camp Lee, Petersburg, Va., *Camp McClellan*, Anniston, Ala., *Camp Sheridan*, Montgomery, Ala., *Camp Sevier*, Greenville, S. C., *Camp Greene*, Charlotte, N. C., and *Camp Wadsworth*, Spartanburg, S. C., for inspection, and on completion *to his proper station*, Col. ALBERT R. TRUBY.

To Camp Logan, Ellington Field, Houston, *Love Field*, and *Concentration Camp*, Dallas, *Taliaferro Field*, Fort Worth, *Call Field*, Wichita Falls, *Camp MacArthur*, and *Rich Field*, Waco, Texas, for inspection, and on completion *to his proper station*, from Fort Sam Houston, Col. WILLIAM F. LEWIS.

To Camp Pike, Little Rock, Ark., for duty, from Camp Logan, Lieut. PAUL H. STREIT.

To Camp Upton, Long Island, N. Y., *Camp Dix*, Wrightstown, N. J., *Camp Meade*, Annapolis Junction, Md., for consultation, and on completion *to his proper station*, from Camp Devens, Lieut.-Col. CHANNING FROTHINGHAM, Jr. *To Camp Upton*, for duty, Major FRANCIS FRONCZAK.

To Camp Wheeler, Macon, Ga., for temporary duty, from Camp Gordon, Lieut.-Col. CONDON C. McCORNACK. Base hospital, from Camp Wheeler, Lieut. THOMAS H. STEWART.

To Charleston, S. C., as camp surgeon, from Camp Grant, Major GARFIELD L. McKINNEY.

To Chicago, Ill., for duty, and on completion *to his proper station*, Major HARRY M. KERNS.

To Fort Oglethorpe as instructor, from West Point, Major HOWARD H. BAILY.

To Hoboken, N. J., for temporary duty, from Camp Crane, Lieut.-Col. FRANK C. BAKER.

To Hot Springs, Ark., for temporary duty, and on completion *to San Francisco, Calif.*, for duty, from Walter Reed General Hospital, Lieut.-Col. WILLIAM P. BANTA.

To Jefferson Barracks, Mo., Scott Field, Belleville, Ill., *Fort Leavenworth, Fort Riley, Camp Funston*, Fort Riley, Kansas, *The Balloon School*, Fort Omaha, Nebr., *Camp Dodge*, Des Moines, Ia., *Rock Island Arsenal, Ill., Wilbur Wright Field*, Dayton, Ohio, *Camp Sherman*, Chillicothe, Ohio, for inspection, and on completion *to his proper station*, Col. PERCY M. ASHBURN.

To New Haven, Conn., Yale University, for conference, and on completion *to his proper station*, Col. EDWARD L. MANSON.

To Newport News, Va., for duty, from Fort Sam Houston, Lieut. FRANK C. GRIFFIS.

To New York City for duty, and on completion *to his proper station*, Lieut. PAUL E. McBABB.

To Philadelphia, Pa., for instruction, from Fort Oglethorpe, Lieut. EDWARD R. EASTON.

To Pittsburgh, Pa., Carnegie Institute of Technology, and on completion *to his proper station*, Lieut. KARA R. BRIDGE.

To Rockefeller Institute for instruction in laboratory work, from Lakewood, Major FELIX R. HILL.

To Walter Reed General Hospital, Takoma Park, D. C., from the Surgeon-General's Office, Major HENRY J. NICHOLS.

To Washington, D. C., Surgeon-General's Office, for duty, from Washington, Lieut.-Col. WILLIAM H. WELCH.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WALTON HOVEY.

Resignation of Lieut. GEORGE U. LIPSHULCH accepted.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Atlanta, Ga., as attending surgeon, from Camp Gordon, Lieut. WILLIAM C. DABNEY, Birmingham.

To Camp Bowie, Fort Worth, Tex., base hospital, from Fort Oglethorpe, Lieut. JOHN T. CALLAWAY, Birmingham.

To Camp Dix, Wrightstown, N. J., *Camp Upton*, Long Island, N. Y., *Camp Devens*, Ayer, Mass., for inspection, and on completion *to his proper station*, Major SEALE HARRIS, Birmingham.

To Camp Logan, Houston, Tex., base hospital, from St. Louis, Lieut. JOHN H. HAYS, Bessemer.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. ALVIN E. BELDEN, Birmingham.

To Fort Oglethorpe, base hospital, Capt. WILLIAM W. HARPER, Selma; from Fort Oglethorpe, Capt. HUGH BOYD, Scottsboro. For instruction; Lieuts. FOSTER G. FINLEY, Bountsville: ROBERT J. GILLESPIE, Gainestown.

Arkansas

To Camp Bowie, Fort Worth, Tex., base hospital, Lieut. JOHN R. BROWN, Mansfield.

To Camp Custer, Battle Creek, Mich., for duty, from Army Medical School, Lieut. ARLEY D. CATHEY, Wilton.

To Camp Kelly, San Antonio, Tex., for duty, Lieuts. GUY HODGES, Garfield; OSSIAN H. KING, Hot Springs.

To Camp Pike, Little Rock, Ark., with the board examining troops for cardiovascular diseases, from Fort Riley, Lieut. ALVIN W. STRAUSS, Little Rock.

To Camp Dodge, Des Moines, Ia., for duty, from Camp Dodge, Lieut. JAMES W. SLAUGHTER, Wesson.

To Camp Upton, Long Island, N. Y., for duty, from Army Medical School, Lieut. RAPHAEL W. STEELE, Gentry.

To Fort Oglethorpe, base hospital, Lieut. SAMUEL T. TAPSCOTT, Jr., Searcy.

To Hoboken, N. J., evacuation hospital, from Camp Crane, Major MAHLON D. OGDEN, Little Rock.

To Pittsburgh, Pa., Carnegie Institute of Technology for instruction, and on completion *to his proper station*, from Camp Lee, Lieut. JOHN B. WELLS, Scott.

California

To Camp Kearny, Linda Vista, Calif., base hospital, Capt. EDWIN J. RICHE, Watts.

To Camp Kelly, San Antonio, Tex., for duty, Capt. FREDERICK A. BONTHIUS, Los Angeles.

To Chicago, Ill., for instruction, Lieut. TRUSTEN H. HART, Los Angeles; for instruction in orthopedic surgery, Lieut. OSCAR P. STOWE, Mill Valley.

To Camp Fremont, Palo Alto, Calif., base hospital, from Vancouver Barracks, Lieut. CHANNING HALL, Alameda.

To Camp Kearny, Linda Vista, Calif., as a member of the board examining the command for tuberculosis, Lieut. FRED J. BARNET, Los Angeles.

To Fort Logan, H. Roots, Ark., base hospital, from Fort Riley, Lieut. JAMES L. MILLER, Jr., Los Angeles.

To Fort Oglethorpe, base hospital from Camp Lewis, Capt. WILFORD F. BEERMAN, San Francisco.

To Fort Riley for instruction, Lieut. GEORGE C. SNYDER, San Francisco.

To Mineola, Long Island, N. Y., for duty, from San Francisco, Lieut. FREDERICK C. LEWITT, San Francisco.

To San Francisco, Calif., Letterman Hospital, for temporary duty, from Los Angeles, Capt. EARL H. GREENWOOD, San Francisco.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. FRANCIS S. COOK, Brentwood.

Colorado

To Camp Bowie, Fort Worth, Tex., base hospital, from San Antonio, Major FRANCIS H. McNAUGHT, Denver.

To Fort Oglethorpe for instruction, Lieut. CHARLES H. TILLOTSON, Denver.

To Fort Sam Houston, Texas, for duty, Lieut. JAMES E. JEFFERY, Ordway.

To Mineola, Long Island, N. Y., for duty, from Fort Riley, Lieut. JOSEPH B. SALBERG, Boulder.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. BERNARD C. DORSET, Denver.

Connecticut

To Army Medical School for duty, Lieut. FRED MORSE SMITH, Willimantic.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. THOMAS P. MURDOCK, Meriden.

To Camp Meade, Annapolis Junction, Md., base hospital, from Lakewood, Major JOHN A. MURPHY, New Haven; from Camp Sheridan, Capt. DANIEL C. PATTERSON, Bridgeport.

To Camp Meigs, Washington, D. C., for duty, from Camp Greene, Lieut. JOHN F. SAGARINO, Hartford.

To Army Medical School for duty, from New York City, Lieut. LOUIS F. WHEATLEY, Meriden.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. RODNEY W. ROWELL, Stanford; from New York City, Capt. EDWARD E. ROWELL, Stanford.

To Camp Greene, Charlotte, N. C., for duty from Fort Crook, Capt. FREDERICK G. GOODRIDGE, Pomfret Center.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Lieut. WALTER L. BARBER, JR., Waterbury.

To Camp Upton, Long Island, N. Y., for duty, from Army Medical School, Lieut. JOHN W. CALLAHAN, Norwich.

To Fort Oglethorpe for instruction, Major HARRY M. LEE, New London; Lieuts. HOMER F. MOORE, Bethel; ELMER T. SHARPE, Derby; FREDERICK B. BRADSEN, Essex; JULIAN L. BIRDSONG, Hartford; HAROLD E. HOYT, Horoton Heights; EDWARD F. PERRY, Putnam; from Philadelphia, Capt. ROBERT M. YERGASON, Hartford.

Honorably discharged, Lieut. CHARLES J. GREENSTEIN, Meriden.

Delaware

To Camp MacArthur, Waco, Tex., base hospital, from Fort Oglethorpe, Lieut. JOHN H. MULLIN, Wilmington.

District of Columbia

To Camp Sevier, Greenville, S. C., base hospital, from Fort Oglethorpe, Capt. JOHN D. THOMAS, Washington.

To Fort Oglethorpe for instruction, Lieut. DANIEL W. PRENTISS, Washington.

To Raleigh, N. C., for duty, Major JOSEPH J. KINYOUN, Washington.

Honorably discharged as he has completed his duty as medical advisor to the commissioners of the District of Columbia, Lieut. JOHN W. BOVEE, Washington.

Florida

To Fort Oglethorpe for instruction, Major GEORGE R. PLUMMER, Key West; Lieut. FREDERICK W. SCHULTZ, Sarasota.

To Walter Reed General Hospital, Takoma Park, D. C., for observation and treatment, from Baltimore, Lieut. CHADBOURNE A. ANDREWS, Tampa.

Georgia

To Camp Kelly, San Antonio, Texas, for duty, Lieut. WILLIAM M. COBER, JR., Marietta.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Oglethorpe, Lieut. AUGUSTUS H. FRYE, Griffin.

To Fort McPherson, Ga., for temporary duty, Lieut. JOHN R. MANLEY, Franklin.

To Fort Oglethorpe for instruction, Capt. GEORGE S. MACPHERSON, Lieut. IVERSON C. CASE, Atlanta; from Lakewood, N. J., Lieut. ORLANDO S. WOOD, Washington.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. DAVID H. PARLIAMINT, Covington.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. GEORGE C. BROOKE, Alpheretta.

To Camp Lee, Petersburg, Va., base hospital, from Army Medical School, Lieut. CLEO D. WILDER, Atlanta.

To Camp Meade, Annapolis Junction, Md., for duty, from New York City, Capt. WALPOLE C. BREWER, Atlanta. Base hospital, from Camp Bowie, Lieut. LEMUEL J. JOHNS, Tallapoosa.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Devens, Capt. JOHN M. SIGMAN, Macon.

To Camp Travis, Fort Sam Houston, Tex., for duty, Lieuts. JAMES G. HALL, Atlanta; WILLIAM K. HADAWAY, La Grange.

To Camp Upton, Long Island, N. Y., base hospital, from Army Medical School, Lieut. THOMAS B. KING, Sandersville.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Capt. JOHN W. DANIEL, Savannah.

To Camp Wheeler, Macon, Ga., base hospital, from New York City, Capt. CHARLES J. WOODS, Darien.

To Fort Oglethorpe, base hospital, from Fort McPherson, Major RICHARD P. DALY, Atlanta. For instruction, Capt. FREDERICK G. HODGSON, Atlanta.

To Hoboken, N. J., evacuation hospital, from Camp Crane, Capt. THOMAS C. DAVISON, Atlanta; E. T. NEWSOM, Camilla.

To the inactive list, from Atlanta, Ga., Lieut. DUMBAR ROY, Atlanta.

Resignation of Lieut. WILLIAM G. RENTZ, Nashville, accepted.

Idaho

To Camp Dix, Wrightstown, N. J., base hospital, from Army Medical School, Lieut. GEORGE B. RANDALL, Buhl.

To Vancouver Barracks, Wash., for duty, from Camp Lewis, Lieut. ONES F. PAGE, Standpoint.

Illinois

To Ann Arbor, Mich., psychopathic hospital, for intensive training, Lieut. DAVID V. ROTMAN, Dunning.

To Atlanta, Ga., for duty from Fort Oglethorpe, Lieut. LLOYD B. CLINTON, Chicago.

To Baltimore, Md., for inspection, and on completion *to his proper station*, Major JOHN A. HORNSBY, Chicago.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. ELZEAR LAMOTHE, Chicago.

To Camp Bowie, Fort Worth, Tex., base hospital, from Camp Bowie, Lieut. PAUL R. ALLYN, Waverly.

To Camp Cody, Deming, N. M., for duty, from Fort Riley, Lieut. NORMAN COPELAND, Chicago.

To Camp Crane, Allentown, Pa., base hospital, from Camp Upton, Lieut. GEORGE E. O'GRADY, Chicago.

To Camp Custer, Battle Creek, Mich., for duty, from Army Medical School, Lieut. ROY E. CHRISTIE, Chicago. To examine the command for mental and nervous diseases, from Ann Arbor, Lieut. RALPH R. McCARTHY, Chicago.

To Camp Devens, Ayer, Mass., base hospital, Lieut. MILTON J. LATIMER, Chicago.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. HENRY W. LANG, Chicago; from Camp Meade, Lieut. FRANK R. MAURER, Chicago.

To Camp Fremont, Palo Alto, Calif., as division tuberculosis specialist, from Fort Riley, Lieut. CHARLES E. PITTE, Chicago.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Riley, Lieuts. FRED McK. MILLER, PAUL S. TRAXLER, Chicago.

To Army Medical School for instruction, Lieut. EVERETT E. HOWARD, Rossville.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. WALTER L. SACHTLEBEN, Chicago; from Army Medical School, Lieut. BENJAMIN H. HUGGINS, Evanston; from Camp Crane, Major ELBERT CLARK, Chicago.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Riley, Capt. ALBERT L. ALDERSON, Pana; from Camp Dodge, Lieuts. RAYMOND EVANS, Eaton; FREDERICK H. PHILLIPS, Mulkeytown.

To Camp Gordon, Atlanta, Ga., to examine the command for mental and nervous diseases, from Fort McPherson, Lieut. WILSON K. DYER, Kankakee.

To Camp Jackson, Columbia, S. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. VINCENT W. KOCH, Chicago.

To Camp Pike, Little Rock, Ark., base hospital, from Camp Dodge, Capt. HENRY C. WOLTMAN, Jacksonville; from Army Medical School, Lieut. PATRICK J. GRIFFIN, Chicago.

To Camp Travis, Fort Sam Houston, Tex., for duty, Lieut. K. FRANCIS H. GBURCZY, Joliet.

To Camp Upton, Long Island, N. Y., for duty, Lieuts. IRWIN W. BACH, Pontiac; ARCHIE B. CALVIN, South Chicago.

To Chicago, Ill., for instruction, from Fort Riley, Lieuts. ELVEN J. BERKHEISER, Aurora; MIECUALAUS J. KOSTREWSKI, Chicago; CHARLES LAF. KERRICK, Chrisman; WARREN C. BLIM, Crete; HERMAN C. KOCH, Harvard; LEON URBANOWSKI, Peru.

To Fort Oglethorpe for instruction, Capt. SOL. ROSENBLATT, Chicago; from Camp Beauregard, Lieut. CLARENCE MAK. CHEADLE, Rockford. For duty, and on completion *to his proper station*, from Camp Zachary Taylor, Lieut. RALPH W. CARPENTER, Chicago.

To Fort Riley, base hospital, Major JULIUS H. HESS, Chicago. For instruction, Capts. REUBEN J. ATWOOD, LOUIS A. GREENSFELDER, Chicago.

To Hoboken, N. J., evacuation hospital, from Camp Crane, Lieut. EVERETT P. COLEMAN, Canton. For duty, Lieuts. HARRY D. BRICKLEY, JACOB PASKIND, Chicago; VERN E. CANNON, Decatur.

To Mineola, Long Island, N. Y., Hazelhurst Field, from Camp Wadsworth, Capt. NATHAN S. DAVIS, Chicago.

To Philadelphia, Pa., for instruction, from Fort Oglethorpe, Lieut. FRANK J. JIRKA, Chicago.

To Raleigh and *Charleston, N. C.*, to investigate property, and on completion *to his proper station*, Major JOHN A. HORNSBY, Chicago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. EUGENE A. MOULTON, Chicago; Lieut. HENRY F. HOESLEY, Woodstock.

Resignation of Lieut. DAVID V. OWENS, Chicago, Ill., accepted.

Indiana

To Atlanta, Ga., for duty, from Fort Oglethorpe, Capt. MERTON A. FARLOW, Melroy.

To Camp Beauregard, Alexandria, La., base hospital, from Camp Shelby, Capt. JAMES A. WORK, JR., Elkhart. For duty, from Fort Oglethorpe, Lieut. ARCHIE V. HINES, Auburn.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. JAMES F. HATFIELD, Walton.

To Camp Gordon, Atlanta, Ga., as commanding officer of base hospital, from Camp Gordon, Major SIMON J. YOUNG, Valparaiso.

To Camp Hancock, Augusta, Ga., for duty, from Camp Sevier, Lieut. SEWELL B. COULSON, Maldron.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Zachary Taylor, Capt. GEORGE D. MARSHALL, Kokomo.

To Camp Custer, Battle Creek, Mich., as member of the tuberculosis examining board from Fort Riley, Lieut. LAWRENCE L. CRAVEN, East Peru.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Sevier, Lieut. LYMAN A. BURNSIDE, Terre Haute.

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Lieut. GROVER C. PRICE, Judson.

To Camp Meade, Annapolis Junction, Md., base hospital, from Army Medical School, Lieuts. HERMAN H. GICK, Indianapolis; OLIVER B. GRIEST, LaFayette.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Riley, Lieut. ROBERT W. REID, Union City.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Oglethorpe, Lieut. ADAM F. PANEK, South Bend.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Oglethorpe, Lieut. WALTER D. MARTIN, Kramer.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Camp Laurel, Lieut. ARA D. SHARP, Lafayette.

To Fort Oglethorpe for instruction, Capts. EDGAR F. SOMMER, Indianapolis; JOHN W. BOWERS, Michigan City; Lieuts. RAYMOND J. BERGHOFF, Ft. Wayne; H. PAUL PRESTON, Plymouth; WALTER L. MISENER, Richmond; TELL C. WALTERMIRE, Shelbyville; EVERETT H. PEA, Vincennes; JOHN F. DOWNING, Yorktown. Base hospital, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. OLIVER C. BENNETT, Culver. On completion *to Camp Hancock*, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. EMERY F. SMALL, Decker.

To Washington, D. C., for consultation, and on completion *to Fort Slocum, N. Y.*, for duty, from Fort Riley, Capt. NOAH W. CLARK, Rossville.

Honorably discharged, Capt. JOSEPH M. GLENN, Vincennes. On account of physical disability existing prior to entrance into the service, Capt. WILLIAM W. EICHELBERGER, Evansville.

Iowa

To Camp Dix, Wrightstown, N. J., for duty, from Camp Upton, Lieuts. HAROLD L. BRERETON, Emmetsburg; WILLIAM HARRIS, Moravia.

To Camp Dodge, Des Moines, Ia., base hospital, from Camp Dodge, Lieuts. LEO C. KUHN, Chariton; LEE W. PRESCOTT, Sloan.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. WALTER E. FOLEY, Davenport.

To Camp Meade, Annapolis Junction, Md., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. MEREDITH MALLORY, Des Moines.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Oglethorpe, Lieut. ROSWELL H. PAYNE, Des Moines.

To Camp Travis, Fort Sam Houston, Tex., for duty, Capt. EMIL O. FICKE, Davenport.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. REX V. HENRY, Hedrick.

To Fort Oglethorpe for instruction, Capt. NATHANIEL PALMQUIST, Hornick.

To Fort Riley for instruction, Lieuts. THOMAS N. WALSH, Hawkeye; JOSEPH WM. BEL ISLE FLAGEOLIE, Sioux City.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction, and on completion *to his proper station*, from Fort Riley, Lieut. GEORGE MARESH, Riverside.

Kansas

To Camp Beauregard, Alexandria, La., base hospital, Lieut. GEORGE V. ALLEN, Topeka.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Leavenworth, Lieut. MATTHEW H. KEEFER, Kansas City.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. AMES M. MOORE, Madison.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Riley, Lieut. JOHN H. HANSEN, Elkhart.

To Camp Kelly, San Antonio, Tex., for duty, Lieut. DONALD R. WILSON, Paola.

To Camp Logan, Houston, Tex., for duty, from Camp Jackson, Major JOHN E. HEWITT, Wakefield.

To Camp Meade, Annapolis Junction, Md., base hospital, from Camp Meade, Lieut. FREDERICK E. WRIGHTMAN, Sabetha.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Zachary Taylor, Lieut. GEORGE I. THACHER, Waterville.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. ALBERT L. BROWN, Leavenworth.

To Hoboken, N. J., evacuation hospital, from Camp Crane, Capt. JESSE D. COOK, Topeka.

To Houston, Tex., for duty, from Fort Jay, Major ALBERT R. GOODMAN, Topeka.

Kentucky

To Camp Custer, Battle Creek, Mich., for duty, from Camp Grant, Capt. PORTER C. LAYNE, Ashland.

To Camp Gordon, Atlanta, Ga., as a member of a board to examine the command for tuberculosis, from Fort Oglethorpe, Lieut. JOHN B. FLOYD, Louisville.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. OLDRON A. MITCHELL, Raywick.

To Camp Bowie, Fort Worth, Tex., base hospital, from Fort Oglethorpe, Capts. JOHN T. PRICE, Harrodsburg; HUGH E. PRATHER, Hickman; AMPLIAS W. DAVIS, Morton's Cap.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Meade, Lieut. ALBERT L. SOLOMON, Hodgenville.

To Camp Dodge, Des Moines, Ia., base hospital, from Army Medical School, Lieut. ELMORE B. BACKSMAN, Newport.

To Camp Gettysburg, Gettysburg, Pa., field hospital, from Fort Oglethorpe, Capt. HORACE LUTEN, Fulton.

To Camp Kearny, Linda Vista, Calif., as a member of a board to examine the command for tuberculosis, from Camp Kearny, Lieut. JOHN L. HAYDEN, Salem.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Lieut. CLAY CRAWFORD, Fort Thomas.

To Camp Upton, Long Island, N. Y., for duty, from Camp Devens, Lieut. IRA THOMAS, Pembroke.

To Fort Oglethorpe for instruction, Capts. EDWARD C. BARLOW, Georgetown; FRANK P. THOMAS, Hopkinsville; EUGENE E. PALMORE, Strode; Lieuts. LEMUEL J. GODBEY, Verea; DUPE S. ROBERTSON, Cunningham; DALLAS E. ABRAHAM, Louisville; CHAS. L. GRAHAM, Tollisboro; CORNELIUS H. DUVALL, Warsaw.

To Fort Sam Houston, Texas, for duty, from St. Louis, Capt. JETHRA HANCOCK, Louisville.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. EDWIN W. MONTGOMERY, Vine Grove.

To New Haven, Conn., for duty, from Fort Oglethorpe, Capt. WALTER A. LACKEY, Paducah.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. FERDINAND H. HAESSLER, Louisville.

Honorably discharged, Capt. JAMES H. HARPER, Gimlet; Lieut. JOHN G. SIDDENS, Lucas. On account of physical disability existing prior to entrance into the service, Capt. GEORGE W. PAYNE, Bardwell.

Resignation of Lieut. JULIUS E. HOWE, Rocky Hill Station, accepted.

Louisiana

To Army Medical School for instruction, Lieuts. LOUIS A. HEBERT, Lake Arthur; JOHN B. FERRAN, JR., New Orleans.

To Camp Dodge, Des Moines, Iowa, base hospital, from Army Medical School, Lieut. JOSEPH R. D'AUNOY, New Orleans.

To Camp Jackson, Columbia, S. C., base hospital, from Army Medical School, Lieut. EDWARD B. F. FAGET, New Orleans.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Oglethorpe, Lieut. MILTON W. TALBOT, Fullerton.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Oglethorpe, Lieut. ISIDORE B. ROUGON, Shreveport.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. CHARLES E. VERDIER, New Orleans.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Oglethorpe, Lieut. JOHN SIGNORELLI, New Orleans.

To Fort Oglethorpe for instruction, Capt. WILLIAM J. ROBERTS, Colfax; Lieuts. RANKIN R. LOWERY, GEORGE F. ROELING, New Orleans; from Camp Beauregard, Lieut. HENRY C. LOCHTE, New Orleans.

To Fort Sam Houston, Texas, for duty, Lieut. CHRISTOPHER C. SELF, Barnham.

Maine

To Army Medical School for instruction, Lieuts. ISAAC L. GORDON, Lincoln; THOMAS C. WYMAN, Portland.

To Camp Devens, Ayer, Mass., base hospital, from Army Medical School, Lieut. HAROLD E. E. STEVENS, Lewiston.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. JOHN A. HAYWARD, Portland; from Fort Oglethorpe, Capt. HARRY F. MORIN, Bath.

To Fort Oglethorpe for instruction, Lieut. WALTER B. WILLEY, JR., Bangor.

Honorably discharged, Lieut. WALTER W. HENDEE, Augusta.

Maryland

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. JAMES S. SPEED, Baltimore.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Lee, Lieut. WILLIAM D. CAWLEY, Elkton.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. JACK M. HUNDLEY, JR., Baltimore.

To Camp Jackson, Columbia, S. C., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. ISRAEL J. FEINGLOS, Baltimore.

To Camp Lee, Petersburg, Va., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. ALGERNON D. ATKINSON, Baltimore.

To Camp Meade, Annapolis Junction, Md., base hospital, from Camp Meade, Capt. WILLIAM HENRY SMITH, Baltimore. *To examine the command for mental and nervous diseases*, from Camp Meade, Lieut. RAYMOND K. FOXWELL, Cambridge.

To Fort Oglethorpe for instruction, from Army Medical School, Lieut. DUMONT F. ELMENDORF, Baltimore.

To Hoboken, N. J., evacuation hospital, from Camp Crane, Lieut. JOHN L. TRABAND, JR., Baltimore.

To New York City, Neuro-Surgical School, for inspection, and on completion *to his proper station*, Major CHARLES BAGLEY, JR., Baltimore.

Massachusetts

To Cambridge, Mass., Institute of Technology, and on completion *to his proper station*, from Army Medical School, Capt. RICHARD D. BELL, Somerville.

To Camp Crane, Allentown, Pa., base hospital, Lieut. ALPHA R. SAWYER, Boston; from Camp Devens, Lieut. OSCAR F. COX, Boston; from Camp Doniphan, Major GEORGE A. CRAIGIN, Boston; from Fort Ethan Allen, Vt., Capt. ARTHUR P. JANES, Boston.

To Camp Custer, Battle Creek, Mich., for duty, from Army Medical School, Lieut. HORMIDAS CHOQUETTE, New Bedford.

To Camp Devens, Ayer, Mass., base hospital, from Camp Devens, Major JOHN J. DOWLING, Boston. To examine the command for mental and nervous diseases, from New York City, Lieut. HERBERT R. FIEGE, Waverly.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeons from Fort Oglethorpe, Lieuts. JOSEPH J. SKIRBALL, Boston; ARTHUR J. GANLEY, Methuen. For duty, from Fort Oglethorpe, Lieut. HENRY A. ROBINSON, Marlboro. To examine the command for mental and nervous diseases, from Boston, Lieut. GEORGE B. WILBUR, Newton; from New York City, Lieut. DANIEL J. FENNELLY, Fall River.

To Army Medical School for instruction, Lieut. RUFUS W. LONG, Manchester.

To Boston, Mass., Harvard Graduate School of Medicine, for instruction in orthopedic surgery, from Fort Oglethorpe, Lieut. JOSEPH H. SHORTELL, Boston.

To Camp Bowie, Fort Worth, Texas, base hospital, from Fort Oglethorpe, Lieut. LUCIEN R. CHAPUT, Haverhill.

To Camp Crane, Allentown, Pa., base hospital, from Fort Oglethorpe, Lieut. HENRY A. R. KREUTZMAN, Boston.

To Camp Custer, Battle Creek, Mich., as a member of the tuberculosis examining board, from Fort Riley, Lieut. WILLIAM C. JENSEN, Worcester.

To Camp Dix, Wrightstown, N. J., base hospital, from Camp Devens, Major WILLIAM F. WESSELHOEFT, Boston; Lieuts. WILLIAM F. WOOD, Boston; from Camp Dix, Lieuts. JOSEPH J. SKIRBALL, Boston; GEORGE W. TULLY, Southbridge; from Camp Wheeler, Lieut. DAVID L. BELDING, Watertown; from Hoboken, Capt. ORVILLE R. CHADWELL, Boston; from Fort Oglethorpe, Lieuts. RALPH H. HOPKINS, THOMAS W. PHILLIPS, HAROLD W. RIPLEY and JOHN J. STACK, Boston; ROLAND O. PARRIS, Brookline; KIRKE L. ALEXANDER, Orange.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. ROBERT B. HUNT, Arlington.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. DAVID W. HOUSTON, JR., Boston.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. CORNELIUS J. DACEY, Brockton.

To Camp MacArthur, Waco, Tex., base hospital, from Fort Oglethorpe, Lieut. NATHANIEL M. COHEN, Boston.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. KENNETH L. DOLE, Boston.

To Camp Wheeler, Macon, Ga., base hospital, Capt. LYMAN S. HAPGOOD, Cambridge; LEWIS S. McQUADE, Dorchester Center.

To Chicago, Ill., for instruction, from Camp Sherman, Capt. CLARENCE H. DOBSON, Conway.

To Fort McHenry, Md., base hospital, from Camp Devens, Lieut. FRANK W. MATHEWSON, New Bedford.

To Fort Oglethorpe for instruction, Capt. OSCAR C. SWOPE, Kingston; from Army Medical School, Lieut. ERNEST E. SMITH, Webster. For duty, from Fort Oglethorpe, Lieut. PATRICK H. O'CONNOR, New Bedford.

To Hoboken, N. J., evacuation hospital, from Camp Crane, Capt. ROBERT L. JONES, Lowell. For duty, Lieuts. BENJAMIN W. RUDMAN, Boston; JOSEPH D. MILOT, Fall River.

To Laurel, Md., for duty, from Camp Lee, Major RICHARD J. R. CAINES, Boston.

To Philadelphia, Pa., for instruction, from Fort Oglethorpe, Lieuts. FRANK W. HODGDON, JR., Boston; ARTHUR L. BRUNELLE, New Bedford; HARRY R. COBURN, Tewksbury.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. LEWIS D. McCARTHY, Essex.

Michigan

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. ROLAND E. TOMS, Grand Rapids.

To Camp Crane, Allentown, Pa., base hospital, from Fort Oglethorpe, Lieut. THEODORE H. SMITH, Detroit.

To Camp Dodge, Des Moines, Ia., to examine the command for mental and nervous diseases, from Ann Arbor, Lieut. WILLIAM D. MUELLER, Traverse.

To Camp Grant, Rockford, Ill., base hospital, Lieut. EMIL V. MAYER, Detroit.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. WILLIAM A. HYLAND, Grand Rapids.

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Lieut. ELMER D. OSMUM, Allegan.

To Camp Logan, Houston, Tex., base hospital, from Camp Logan, Capt. NORMAN J. PIKE, Saginaw.

To Army Medical School for instruction, Lieut. WALTER W. J. BIEN, Union City.

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Dodge, Lieut. ARTHUR R. SMECK, Detroit.

To Camp Grant, Rockford, Ill., with the board examining the troops for cardiovascular diseases, from Fort Riley, Lieut. LYMAN J. PINNEY, Detroit.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Corpus Christi, Capt. BERTRAM H. OLMSTEAD, Calumet.

To Fort McPherson, Ga., for temporary duty, Lieut. EDMUND C. MOHR, Bay City.

To Fort Oglethorpe for instruction, Capt. HARMON E. BOICE, Byron; Lieuts. LOUIS A. KING, Baroda; DELBERT R. BLENDER, Detroit.

To Hoboken, N. J., evacuation hospital, from Camp Crane, Capt. FREDERICK S. BAIRD, Bay City.

To Mineola, Long Island, N. Y., for temporary duty, Lieut. RAYMOND S. GOUX, Detroit.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. WILLIAM H. GALE, St. Johns.

Minnesota

To Camp Travis, Fort Sam Houston, Texas, for duty, from Fort Riley, Lieuts. JOSEPH MOSES, Jr., Adams; MERRITT W. WHEELER, Glencoe.

To Chicago, Ill., for instruction, from Fort Riley, Lieut. JOHN A. SAARI, Eveleth.

To Minneapolis, Minn., University of Minnesota, to make physical examination and give medical attention to the drafted men to be enrolled at this institution, and on completion *to the inactive list*, Capt. RALPH ST. J. PERRY, Minneapolis.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Little Rock, Ark., base hospital, Lieut. JAMES BENTON B. NEIL, Rochester.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. ARCHIBALD B. BUTTER, Minneapolis; ARTHUR E. MARK, St. Paul.

Mississippi

To Camp Shelby, Hattiesburg, Miss., for duty, from Camp Shelby, Capt. AUGUSTUS M. HARRELSON, Newton.

To Fort Oglethorpe for instruction, Capt. INMAN W. COOPER, Meridian. Base hospital, from Camp Bowie, Lieut. ROBERT H. PEGRAM, Potts Camp; from Fort Oglethorpe, Lieut. CASSIUS D. ALEXANDER, Vaiden.

To Hoboken, N. J., for temporary duty, from Camp Shelby, Capt. JOHN H. JOHNSON, Brookhaven.

Missouri

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. WILLIAM D. DAVIS, St. Louis.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Ontario, Capt. WILLIAM LER. KENNEY, St. Joseph.

To Camp Dodge, Des Moines, Ia., base hospital, Major CYRUS E. BURFORD, St. Louis.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Capt. FREDERICK B. SPENCER, Hannibal.

To Camp Kelly, San Antonio, Tex., for duty, Lieut. JOSEPH W. DEAN, Pond.

To Camp Upton, Long Island, N. Y., for duty, from Fort Oglethorpe, Capt. IRA H. MILLER, Louisiana; from Fort Totten, Lieut. HALBERT R. HILL, Bachelor.

To Fort Oglethorpe for instruction, Lieut. CLYDE P. DYER, St. Louis.

To Camp Dix, Wrightstown, N. J., base hospital, from Army Medical School, Lieut. FRED S. PERRINGS, St. Louis. For duty, from Fort Oglethorpe, Lieuts. CLYDE P. DYER, St. Louis; from Fort Riley, Lieut. GROVER C. McCORMACK, St. Louis.

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Dodge, Lieut. SAMUEL W. HOLT, Steffenville.

To Camp Gettysburg, Gettysburg, Pa., field hospital, from Camp Wadsworth, Lieut. JOHN R. VAUGHAN, St. Louis.

To Camp Lewis, American Lake, Wash., base hospital, from Camp MacArthur, Capt. OTTO W. KOCH, Ballwin.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Riley, Lieut. JOSEPH L. HUTTON, St. Louis.

To Chicago, Ill., for instruction, from Fort Riley, Capt. LUTHER C. NICKELL, Macon; Lieuts. CHARLES F. DAVIS, Kansas City; HARRY F. PARKER, Warrensburg.

To Fort Oglethorpe for instruction, Capt. FRANK L. BIGSBY, Kirksville.

To Fort Riley for instruction, Lieut. WADE H. MILLER, Kansas City.

To Hoboken, N. J., for duty, Capt. T. WISTAR WHITE, St. Louis; from Fort Oglethorpe, Lieut. ROY W. JOHNSON, St. Louis. Evacuation hospital, from Camp Crane, Lieut. CLYDE O. BROWN, St. Louis.

To Kansas City, Mo., Sweeney Auto School, to make physical examinations and give medical attention to drafted men to be enrolled at this school and to Rahe Auto Tractor School, for the same duty, and on completion *to the inactive list*, Capt. JOHN G. HAYDEN, Kansas City.

To New York City for duty, and on completion *to his proper station*, Major FREDERICK W. BAILEY, St. Louis.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction, and on completion *to his proper station*, from Fort Riley, Lieut. RICHARD S. BATTERSBY, Shelbina.

To Washington, D. C., Government Hospital for the Insane, for duty, Lieut. ELBERT LAF. SPENCE, St. Joseph.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. ARTHUR L. FUERTH, Cape Girardeau.

Montana

To Camp Lewis, Wash., base hospital, for observation, treatment and report, Major LE ROY SOUTHMAYD, Great Falls.

To Fort Riley for instruction, Lieut. LEE K. GIBSON, Bozeman.

Nebraska

To Chicago, Ill., for instruction, from Fort Riley, Lieut. LESTER K. STRATE, Sutton.

To Lakehurst, N. J., for duty, from Army Medical School, Lieut. WILLIAM L. HOWELL, Ryannis.

To Mineola, Long Island, N. Y., for duty, from Fort Riley, Lieut. JOHN R. KLEYLA, Omaha.

New Hampshire

To Fort Oglethorpe for instruction, Lieuts. ALEXANDER BORLAND, Meredith; WILLIAM P. CLOUGH, Sutton.

Honorably discharged, Capt. WILLIAM C. E. NOBLES, Littleton.

New Jersey

To Aberdeen, Md., Proving Grounds, for duty, from Army Medical School, Lieut. GERALD L. HIGGINS, Jersey City.

To Camp Crane, Allentown, Pa., base hospital, from Camp Devens, Lieut. LESLIE H. EWING, Berlin; from Camp Joseph E. Johnston, Lieut. CHARLES P. LINGLE, Arlington; from Camp Upton, Lieut. ROCCO M. NITTOLI, Newark; from Fort Oglethorpe, Lieut. ADDISON H. BISSELL, Newark.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. ROGER T. FOX, Gloucester City; JOSEPH WECHSLER, Jersey City; MORRIS L. SIMON, HYMAN J. UDINSKY, Passaic; HUGH V. GILLSON, MEYER WISHNACK, Paterson.

To Army Medical School for instruction, Lieuts. REVERDY V. W. ESTILL; THOMAS W. CONNOLLY, Jersey City.

To Camp Custer, Battle Creek, Mich., as member of tuberculosis examining board, from Camp MacArthur, Lieut. WILLIAM H HAINES, Audubon.

To Camp MacArthur, Waco, Tex., base hospital, from Fort Oglethorpe, Lieut. CHARLES DANE, S. Orange.

To Camp Meade, Annapolis Junction, Md., to examine the command for mental and nervous diseases, from Columbus Barracks, Capt. AMBROSE F. DOWD, Newark. Base hospital, from Camp Meade, Lieut. JAMES P. SANDS, Trenton.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Oglethorpe, Lieut. WILLIAM E. RINK, Burlington.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Lee, Lieut. HOWARD S. SMITH, Newark.

To Fort Oglethorpe for instruction, Capt. WILLIAM N. HARRISON, Upper Montclair; Lieuts. WALTER C. MARTINI, Jersey City; ALFRED WOODHOUSE, Newark; VERNON E. DE GROFFT, Swedesboro; WILLIAM A. NEWELL, SIDNEY SCHEINMAN, CHARLES R. SISTA, Trenton; from Camp Dix, Lieut. LYMAN B. HOLLINGSHEAD, Pemberton.

To Hoboken, N. J., for duty, Lieut. SAMUEL BROCK, Newark.

To Rockefeller Institute for instruction in laboratory work, Lieut. WALTER W. SCHMIDT, Cliffside.

To Washington, D. C., for duty in the Surgeon-General's Office, Major STEWART PATON, Princeton.

New Mexico

To Camp Logan, Houston, Tex., base hospital, from Camp Logan, Capt. FRANK E. MERA, Santa Fe.

To Camp Upton, Long Island, N. Y., for duty, from Williamsbridge, Lieut. ARMSTRONG C. PRATT, Gallup.

New York

To Camp MacArthur, Waco, Texas, for duty, from Camp MacArthur, Capt. ROB R. McCULLY, Auburn. Base hospital, from Fort Oglethorpe, Lieuts. LLOYD L. HOLLENBECK, CHARLES T. OLCOTT, New York City.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. CHARLES J. HUNT, Clifton Springs.

To Camp Meade, Annapolis Junction, Md., for temporary duty, and on completion *to Camp Upton*, Long Island, N. Y., as division psychiatrist, from Washington, D. C., Capt. C. BRUNS CRAIG, New York City. Base hospital, Capt. WALTER W. MOTT, White Plains; from Chicago, Capt. MARK H. WARD, Suffern; from Fort Oglethorpe, Lieut. HARRY E. WHEELOCK, Jamestown.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Capt. SILVANUS B. NEWTON, New York City. Base hospital, from Fort Oglethorpe, Lieut. WILLIAM E. CARROLL, New York City.

To Camp Sevier, Greenville, S. C., base hospital, Capt. PAUL F. CAVANAGH, Brooklyn; from Pittsburgh, Lieut. WILLIAM ENGEL, New York City.

To Camp Upton, Long Island, N. Y., for duty, Capt. WALDMAR T. BROWN, Brooklyn. Base hospital, Lieuts. SAMUEL K. LEVY, FERDINAND F. SIEGEL, Brooklyn; WALLACE F. MacNAUGHTON, Fort Edward; GEORGE M. OPPERMANN, Kenmore; ABRAHAM L. MARGOLIES, WILLARD T. RIVENBAUGH, SAMUEL STRUMWASSER, New York City; WILLIAM H. LOW, Jr., Richmondville.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. JEREMIAH J. DONOVAN, New York City; from Fort Benjamin Harrison, Capt. WALTER F. MACKLIN, New York City; from Fort Oglethorpe, Lieuts. SAMUEL PERLMAN, Brooklyn; DIXON L. AUSTIN, ROBERT E. CONWAY, KIRBY DWIGHT, ROBERT F. McDONALD, New York City.

To Camp Wheeler, Macon, Ga., as assistant to camp surgeon, from Camp Crane, Major HARVEY R. GAYLORD, Buffalo. For duty, from Camp McClellan, Capt. WALTER W. OSGOOD, Jordon; Lieut. EMILIO L. HERGERT, Brooklyn. Base hospital, from Macon, Lieut. JOHN A. MORRISEY, Newark.

To Fort Ontario, N. Y.; Williamsbridge, N. Y.; Camp Dix, Wrightstown, N. J.; *Camp Meade*, Annapolis Junction, Md.; *Fort Myer, Va.; Camp Devens*, Ayer, Mass.; *Camp Upton*, Long Island, N. Y., for inspection, orthopedic examinations and instruction, and on completion *to his proper station*, from New York City, Capt. BRAINERD H. WHITBECK, New York City.

To Fort Wayne, Mich., for duty, from Fort Wayne, Major HENRY L. SCHELLING, Brooklyn.

To Governor's Island, N. Y., for duty, from Walter Reed General Hospital, Lieut. MICHAEL M. SCHULTZ, Astoria, L. I.

To Millington, Tenn., Park Field, to conduct a nutritional survey, and on completion *to Lonoke, Ark.*, Ebbert's Field, for the same duty, and on completion *to Dallas, Texas*, Love Field, for the same duty,

and on completion *to Waco, Texas,* Rich Field, for the same duty, from Jefferson Barracks, Lieut. ALLEN G. T. HIPPS, Brooklyn.

To Army Medical School for instruction, Lieuts. ADAM EBERLE, Brooklyn; FRANK S. HALE, CHARLES VEJVODA, New York City; DONALD A. MACDUFFIE, Olean; RAYMOND E. ELLIOTT, Rochester. Mobile Laboratory, from Army Medical School, Lieut. LAURENCE D. REDWAY, New York City.

To Camp Beauregard, Alexandria, La., base hospital, from Camp McClellan, Capt. RALPH A. KINSELLA, New York City.

To Camp Custer, Battle Creek, Mich., as member of tuberculosis examining board from Camp MacArthur, Lieut. FRANK J. HERBIG, Staten Island.

To Camp Devens, Ayer, Mass., as member of the board examining the command for tuberculosis, from Fort Hancock, Lieut. EDWIN F. SAMPSON, New York City. Base hospital, from Army Medical School, Lieut. FRANK TANNEBAUM, New York City.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. MAXWELL K. WILLOUGHBY, Auburn; Lieut. EDWARD A. FLYNN, New York City.

To Camp Dodge, Des Moines, Ia., base hospital, from Fort Riley, Capt. KENT E. WILLIAMS, Rome.

To Camp Gettysburg, Gettysburg Pa., field hospital, from Camp Sevier, Capt. THOMAS W. JENKINS, Albany.

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Lieut. WILLIAM L. MUNSON, Granville.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. WILLIAM E. DIEFENBACH, Nunda.

To Camp Lee, Petersburg, Va., base hospital, from Army Medical School, Lieut. FREDERICK D. ZEMAN, New York City.

To Camp MacArthur, Waco, Tex., base hospital, from Fort Oglethorpe, Lieut. JOHN L. SENGSTACK, New York City.

To Camp Meade, Annapolis Junction, Md., base hospital, from Camp Sevier, Capt. CHARLES W. WOODALL, Schenectady. And *to Baltimore, Md.,* to make a survey, and on completion *to his proper station,* Capt. ALEC N. THOMSON, Lieut. WILLIAM G. PHILLIPS, Jr., Brooklyn.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Oglethorpe, Lieut. ROBERT C. MADDOX, New York City.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Worden, Lieut. DAN H. WITT, New York City. Base hospital, from New York City, Lieuts. LEO EDELMAN, New York City; from Philadelphia, KYLE B. STEELE, New York City.

To Camp Upton, Long Island, N. Y., base hospital, from New York City, Lieuts. DAVID E. KRONMAN, New York City; JOSEPH L. WOZNIAK, Schenectady. For duty, from Army Medical School, Lieut. THOMAS F. WELDON, Brooklyn.

To Cape May, N. J., for temporary duty, from Camp Dix, Major DAVID BOVAIRD, New York City.

To Fort Oglethorpe and *Chickamauga Park, Ga.,* for conference, and on completion *to his proper station,* Major SANGER BROWN, White Plains. *To Fort Oglethorpe* for instruction, Capts. WALLACE J. C. AUBRY, Cohoes; BERGEN F. ILLSTON, Jamestown; OSCAR LEISER, FRANCIS A. RICHARDSON, FRANCIS W. WHITE, New York City; CHARLES F. KIVLIN, Troy; Lieuts. GEORGE FREIMAN, THOMAS D. MACROSSIE, THEODORE L. PULVERMACHER, HERMAN RUBIN, MACWELL SCHER, Brooklyn; JOHN A. PAYNE, East Satanket; JAMES M. O'NEILL, Flushing; GODNEW JENKS, Hasting-on-Hudson; JOHN J. SZYMANSKI, Maspeth; JOHN J. MILLER, Monticello; MILTON E. GREGG, Mottville; JOHN OUARO, PACOB COHEN, DUDLEY S. CONLEY, ELIAS GAMRIN, MANUS E. ORNSTEIN, PHILIP J. VETTER, Jr., New York City; ROBERT B. WILSON, Oriskany Falls; ROBERT C. SCOTT, Syracuse; HAROLD C. LYMAN, Utica; RAE L. STRONG, White Plains; MOSES KATZ, Yonkers; from Army Medical School, Lieuts. FRANK H. SNYDER, Geneva; MICHAEL A. ROGERS, Greenwich; from Camp Meade, Capt. WALDEMAR T. BROWNE, Brooklyn.

To Fort Riley base hospital, from Army Medical School, Lieut. JULIUS PINCUS, New York City.

To Fort Sam Houston, Tex., base hospital, from Camp Joseph E. Johnston, Lieut. ROBERT BOGAN, Brooklyn.

To Hoboken, N. J., for duty, from Camp Upton, Major GREENE H. HAMMOND, New York City; from Fort Oglethorpe, Capt. HENRY C. DREW, Brooklyn; from Hoboken, Lieut. ROBERT A. CHRISTMAN, New York City. Evacuation hospital, from Camp Crane, Capt. JOHN R. BRADLEY, Rochester; Lieut. JOS. E. RAIA, New York City.

To Markleton, Pa., for duty, from Fort Oglethorpe, Lieut. JOSEPH B. STENBUCK, Brooklyn.

To Mineola, Long Island, N. Y., Hazelhurst Field, from Long Island, Lieut. FEDOR L. SENGER, Brooklyn.

To New Haven, Conn., for duty, from Fort Oglethorpe, Lieut. FRANCIS A. GLASS, New York City.

To Philadelphia, Pa., for instruction in orthopedic surgery, Lieut. RUSSELL PEMBERTON, New York City; from Fort Oglethorpe, Lieut. JULIUS Y. COHEN, Buffalo.

To Washington, D. C., for instructions from New York City, Capt. BERNARD S. OPPENHEIMER, New York City.

To Williamsbridge, N. Y., for duty, from Garden City, Capt. HERBERT R. CHARLTON, Bronxville.

Honorably discharged, Lieuts. ELIAB STAGE, Bliss; HUGH E. ROGERS, Brooklyn; JOHN McALLISTER, New York City.

Resignation of Lieut. WILLIAM R. SEARS, Brooklyn, accepted.

North Carolina

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. HUGH E. CLARK, Rocky Mount.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Capt. ARTHUR T. PRITCHARD, Asheville; Lieut. AMZI J. ELLINGTON, Raleigh.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Greene, Capt. CHARLES A. WOODARD, Durham.

To Camp Upton, Long Island, N. Y., base hospital, from New York City, Lieut. JACOB H. ROZELLE, Salisbury.

To Fort Bliss, Tex., for temporary duty, from Fort Oglethorpe, Lieut. ERNEST S. BULLUCK, Wilmington.

To Fort Oglethorpe for instruction, Lieut. JOHN T. HOGGARD, Atkinson; from Philadelphia, Lieut. JAMES W. DAVIS, Statesville.

To Hoboken, N. J., evacuation hospital, from Camp Crane, Capts. ROLAND S. CLINTON, Rocky Mount; WILLIAM W. GREEN, Tarboro.

To Philadelphia, Pa., for instruction, from Fort Oglethorpe, Lieuts. HERBERT F. MUNT, Boardman; WILLIAM MONCURE, Jr., Hamlet.

Honorably discharged, Lieut. EDWARD V. HARBECK, Weaverville. On account of physical disability existing prior to entrance into the service, Capt. SAMUEL J. LYLE, Franklin.

North Dakota

To Camp Gordon, Atlanta, Ga., base hospital, Capt. HENRY H. HEALY, Grand Forks.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Dodge, Lieut. JULIUS O. ARNSON, Bismarck.

To Fort Oglethorpe, base hospital, from Fort Riley, Lieut. LESLIE G. EASTMAN, Hazen.

Honorably discharged, Capt. ADOLPHUS W. GUEST, Jamestown.

Ohio

To Camp Sherman, Chillicothe, Ohio, base hospital, Major WILLIAM GILLESPIE, Capts. CHARLES T. SOUTHER, Cincinnati; WILLARD S. STONER, Cleveland; Lieuts. JOHN S. HAGEN, LOUIS H. SCHRIVER, REED A. SHANK, Cincinnati.

To Camp Upton, Long Island, N. Y., base hospital, Lieut. HAROLD S. COHN, Toledo. For duty, from Camp Sherman, Lieut. HENRY M. METCALF, Elyria; from Fort Oglethorpe, Lieut. JOSEPH E. STEPHAN, Jewell.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. CHAS. C. PINKERTON, Akron; from Washington, D. C., Capt. JAMES D. PILCHER, Cleveland.

To Dayton, Ohio, McCook Field, Lieut. LOUIS C. WOTTRING, Cincinnati.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. WILBER H. BEACH, Somerville.

To Fort McPherson, Ga., for temporary duty, Lieuts. JOHN H. FRENCH, Jeffersonville; CHARLES F. SHIVELY, Love City.

To Army Medical School for instruction, Lieut. LORIN G. SHEETS, Lucas.

To Camp Custer, Battle Creek, Mich., base hospital, from Army Medical School, Lieut. FREDERICK A. EULER, Cleveland.

To Camp Gettysburg, Gettysburg, Pa., field hospital, from Camp Wheeler, Capt. REEVES W. DECROW, Sciotoville; from Fort Oglethorpe, Capt. WILLIAM S. P. DONEHOO, Wintersville.

To Camp Logan, Houston, Tex., *Camp Beauregard,* Alexandria, La., *Camp Shelby,* Hattiesburg, Miss., and *Camp Pike,* Little Rock, Ark., for conference, and on completion *to his proper station,* from Camp Travis, Major FRANK E. BUNTZ, Cleveland.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Dodge, Lieut. ROBERT R. SATTLER, Cincinnati; from Camp Grant, Capt. JOSEPH E. PIRRUNG, Cincinnati; from Camp Lee, Capt. RUFUS SOUTHWORTH, Glendale; from Camp MacArthur, Lieut. SELMAR F. HOUSER, Cincinnati; from Camp Sherman, Major HENRY D. WOODWARD, Capt. JOHN A. CALDWELL, Cincinnati; from Camp Zachary Taylor, Capt. CHARLES M. PAUL, Lieuts. CHARLES E. KIELY, MERRICK F. MacCARTHY, Cincinnati; from Fort Oglethorpe, Capt. STARR FORD, Lieut. RALPH W. STALEY, Cincinnati.

To Camp Upton, Long Island, N. Y., for duty, Lieut. CHARLES H. HARALSON Mount Vernon; from Washington, Lieut. FRANK B. SNODGRAS, Kenton.

To Cincinnati, Ohio, University of Cincinnati, to make physical examinations and give medical attention to the drafted men to be enrolled at this institution, and on completion *to the inactive list,* Capt. ARTHUR E. OSMOND, Cincinnati.

To Fort Des Moines, Ia., base hospital, Lieut. JOHN F. HOLTZ, Plymouth.

To Fort Oglethorpe for instruction, Capts. ARCHIBALD M. WILKINS, Delta; ROLLIN A. GOUDY, Newcomerstown; Lieuts. HOWARD L. SMALLMAN, Barbarton; HAROLD D. STRAUSBAUGH, Columbus; CLEMENT D. SMEDLEY, Hamilton; ALBERT D. WILLIAMS, Huntsburg; EDWARD G. WEADOCK, Lima; WALTER J. WEISER, Marion; RODERICK B. WITTICH, Mt. Sterling; JAMES W. CROFT, West Liberty.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. JOHN P. TUCKER, Cleveland.

To Mineola, Long Island, N. Y., Hazelhurst Field, from Fort Oglethorpe, Lieut. FRANCIS W. THOMAS, Piqua.

To New York City, and *Hartford, Southington, Middletown, Conn.,* for investigation, and on completion *to his proper station,* Major ROBERT D. MADDOX, Cincinnati.

To Philadelphia, Pa., for instruction, from Fort Oglethorpe, Lieut. RUDOLPH S. REICH, Cleveland.

Honorably discharged, Lieut. SILAS P. THARP, Cincinnati.

Oklahoma

To Camp Cody, Deming, N. M., for duty, from Camp Cody, Lieut. ULUS E. NICKELL, Davenport.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Camp Travis, Lieut. CLARENCE L. WELLMAN, Coalton.

To Camp Upton, Long Island, N. Y., for duty, from Army Medical School, Lieut. CHARLES C. ROSE, Stringtown.

To Chicago, Ill., for instruction, from Fort Riley, Lieuts. WALTER E. KOPPENBRINK, Bartlesville; EARL LERCY YEAKEL, Oklahoma City.

To Fort Des Moines, Ia., base hospital, Capt. LEWIS E. EMANUEL, Chickasha.

To Fort Riley for instruction, Lieut. ALBERT NILE EARNEST, Muskogee; from Fort Sill, Lieut. DAVID A. BEARD, Westville.

To Fort Sam Houston, Tex., for duty, Lieuts. ALFRED E. MARTIN, Marietta; HERMAN E. STECHER, Supply; CHARLES A. PETERSON, Tahlequah. For instruction, and on completion *to his proper station,* from Camp MacArthur, Lieut. JOHN A. WALKER, Shawnee.

To Fort Snelling, Minn., for duty, from Fort Oglethorpe, Lieut. ROBERT H. GIBSON, Oklahoma City.

To Fort Worth, Tex., Taliaferro Field, from Fort Riley, Lieut. DANIEL E. LITTLE, Eufaula.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. JESSIE G. MARSHALL, Canton.

Resignation of Lieut. BENJAMIN T. BITTING, Enid, accepted.

Oregon

To Arm Medical School for instruction, Lieuts. ALFRED E. KINNEY, Astoria; GLENN E. PRIME, Falls City; HARRY E. SHOOT, Portland; JOSEPH R. BARR, Sheridan.

To Camp Lewis, American Lake, Wash., base hospital, from Los Angeles, Capt. RICHARD B. DILLEHUNT, Portland; from Camp Lewis, Capt. WILLIAM S. KNOX, Portland; Lieut. ARTHUR C. McCOWN, Cove.

To Fort Des Moines, Ia., base hospital, Lieut. RICHARD F. JAMES, Portland.

To Fort Riley for instruction, Lieuts. SAM F. LEFEVRE, Bridal Veil; WILLIAM C. JUDD, Salem.

To Hoboken, N. J., for temporary duty, from Camp Greene, Lieut. HENRY W. STEELHAMMER, Silverton; from Camp Sheridan, Lieut.

HARRY M. BOUVY, La Grande; from Fort McHenry, Capt. THOMAS M. JOYCE, Portland; from Fort Oglethorpe, Lieut. GARRETT L. HYNSON, Portland; from Fort Riley, Capt. ROBERT L. BENSON, Lieut. ARTHUR S. ROSENFELD, Portland; from New York City, Lieut. DORWIN L. PALMER, Portland; from Philadelphia, Capt. LAWRENCE SELLING, Portland; from Washington, Capt. SPIRO SARGENTICH, Portland.

To Washington, D. C., for temporary duty, in the Surgeon-General's Office, and on completion to Camp Fremont, Palo Alto, Calif., Major GEORGE E. DARROW, Eugene.

Pennsylvania

To Albuquerque, N. M.; Los Angeles, San Diego, Sacramento, Del Monte, San Francisco, Fresno, Calif.; Salt Lake City, Utah; Cheyenne, Wyo.; Denver, Colorado Springs, Pueblo, Colo.; Fort Dodge, Iowa; La Crosse, Wis.; Minneapolis, Minn.; Mitchell, S. D.; Davenport, Iowa, and Madison, Wis., for duty, Major HENRY D. JUMP, Philadelphia.

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Lieut. RUBEN A. R. PETERSON, Allentown.

To Camp Crane, Allentown, Pa., base hospital, Capt. WALTER A. WOOD, Philadelphia; from Camp Devens, Lieut. JACOB R. BROBST, Bloomsburg; from Camp Dix, Lieut. SAMUEL J. ROSE, Hazelboro; from Camp Lee, Lieut. OSCAR J. KINGSBURY, Nesquohoning; from Camp Upton, Major JOHN A. HAWKINS, Pittsburgh; from Fort Oglethorpe, Lieut. SHAUL GEORGE, Pittsburgh.

To Camp Custer, Battle Creek, Mich., as assistant to camp surgeon, from Fort Oglethorpe, Lieut. GEORGE W. LANG, Alicia. Base hospital, from Fort Brady, Lieut. CHENEY M. STIMSON, Philadelphia. For duty, from Army Medical School, Lieut. FRANK E. SMITH, New Kensington.

To Camp Dix, Wrightstown, N. J., to examine the command for mental and nervous diseases, from Camp Dix, Capt. PERCY DELONG, Philadelphia. Base hospital, Lieut. EDWARD T. GRUETZNER, Greenock. For duty, from Fort Oglethorpe, Lieut. CHARLES A. GOBLE, Jeanette.

To Camp Gordon, Atlanta, Ga., as a member of a board to examine the command for tuberculosis, from Fort Oglethorpe, Lieut. WILLIAM T. PHILLIPY, Carlisle. Base hospital, from Camp Gordon, Lieut. ALBERT PILKINGTON, Philadelphia; from Pass-a-Grille, Fla., Lieut. CHARLES C. GANS, Chambersburg. To examine the command for mental and nervous diseases, from New York City, Lieut. NATHANIEL W. WINKELMAN, Bridgeville.

To Camp Grant, Rockford, Ill., base hospital, from Fort Oglethorpe, Lieut. JOHN H. ALEXANDER, Pittsburgh.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieuts. WILLIAM P. PATTERSON, Fairchance; JOHN D. DONNELLY, HENRY G. GODFREY, Philadelphia.

To Camp Hancock, Augusta, Ga., for duty, from Camp Hancock, Lieut. HOWARD L. FARQUHAR, West Brownville.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. ROBERT B. McIVER, Philadelphia. For duty, from Fort Oglethorpe, Lieut. CARL B. ROSENKRANS, East Strowdsburg.

To Army Medical School for duty, from Pittsburgh, Capt. LEROY S. TOWNSEND, Beaver. For instruction, Lieuts. JOHN W. BANCROFT, Johnstown; JOHN L. MESSMORE, Masontown; CHARLES S. CANTOUGH, Reading; FRANK A. CARROLL, Scranton; JAMES J. MONAHAN, Shenandoah; EVERIL V. CHADWICK, Smethport.

To Boston, Mass., Harvard Graduate School of Medicine, for instruction in orthopedic surgery, from Fort Oglethorpe, Lieut. GEORGE M. ASTLEY, Philadelphia.

To Camp Bowie, Fort Worth, Tex., base hospital, from Fort Oglethorpe, Lieut. JOHN M. LIPSCOMB, Pittsburgh.

To Camp Cody, Deming, N. M., base hospital, from Fort Oglethorpe, Lieut. AUBREY F. LAWSON, Connellsville.

To Camp Crane, Allentown, Pa., base hospital, from Philadelphia, Major ELIJAH H. SITER, Philadelphia.

To Camp Custer, Battle Creek, Mich., *Camp Sherman,* Chillicothe, Ohio, *Camp Zachary Taylor,* Louisville, Ky., *Camp Dodge,* Des Moines, Ia., base hospitals, and on completion *to his proper station,* from Camp Grant, Major WALTER A. DEARTH, Pittsburgh. *To Camp Custer* as member of the tuberculosis examining board, from Fort Riley, Lieut. JAMES W. DOUGHTY, Philadelphia.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. ERNEST J. HOOVER, Altoona.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. HUGH M. BULLARD, Newberry; from Fort Oglethorpe, Lieut. WAYNE L. SNYDER, Brookville.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Lieut. PATRICK F. McHUGH, Wilkes-Barre.

To Camp Laurel, Laurel, Md., for duty, from Fort Oglethorpe, Lieut. WILLIAM C. KESSLER, Philadelphia.

To Camp Lewis, American Lake, Wash., base hospital, from Vancouver Barracks, Capt. HENRY B. INGLE, Philadelphia.

To Camp MacArthur, Waco, Tex., base hospital, from Fort Oglethorpe, Lieut. CHARLES I. PRATT, Coatesville.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. PHILIP S. STOUT, Philadelphia.

To Camp Meade, Annapolis Junction, Md., for duty, from New York City, Lieut. DON B. BROOKS, Connellsville.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Oglethorpe, Capt. HERBERT OLD, Philadelphia.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Capt. ESTES PAINE, Clifton Heights.

To Camp Upton, Long Island, N. Y., base hospital, from Fort Oglethorpe, Lieut. THOMAS McS. BARRETT, Dixmont.

To Camp Wheeler, Macon, Ga., as orthopedic surgeon, from Fort Oglethorpe, Lieut. HENRY J. GILES, Pittsburgh.

To Fort Oglethorpe for instruction, Major MALCOLM C. GROW, Media; Lieuts. ISADORE N. SMIGELSKY, Mt. Carmel; JACOB S. GOLSTEIN, HARRY P. METZGER, Philadelphia; WILLIAM LEISER, 3d, Reading; JOHN M. HIGGINS, Sayre; ROBERT C. JOHNSTON, Springdale; from Camp Beauregard, Capt. WILLIAM RUOFF, Philadelphia; from Camp Gordon, Lieut. STEPHEN S. LANDIS, Duquesne. Base hospital, and on completion *to Camp Wheeler,* Macon, Ga., base hospital, from Fort Oglethorpe, Lieut. SAMUEL B. ROSS, Dubois.

To Hoboken, N. J., for duty, Lieut. HARRY W. ALLISON, Timblin; from Camp Custer, Major JAMES F. EDWARDS, Pittsburgh.

To Newport News, Va., for temporary duty, from Army Medical School, Lieut. GEORGE C. WEBSTER, Chester.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Camp Dix, Lieut. ABRAHAM E. COLCHER, Philadelphia.

To Philadelphia, Pa., for orthopedic instruction, from Fort Oglethorpe, Lieut. HOWARD S. MYERS, Pittsburgh.

To Washington, D. C., for duty in the Surgeon-General's Office, from Fort Riley, Capt. HENRY W. CATTELL, Philadelphia. For consultation, and on completion *to Fort Slocum, N. Y.,* for duty, from Camp Dodge, Lieut. WILLIAM W. WOODS, Mont Alto.

Honorably discharged, Lieuts. VICTOR J. P. JOURDAN, Bristol; RELLA B. FORE, Philadelphia. As his services are needed as instructor at Philadelphia, Major HENRY J. GASKILL, Oak Lane. On account of physical disability existing prior to entrance into the service, Lieut. RUSSELL RICHARDSEN, Newtown.

Rhode Island

To Camp Pike, Little Rock, Ark., base hospital, from Fort Oglethorpe, Lieut. JONATHAN P. HADFIELD, Providence.

To Fort Oglethorpe for instruction Capts. JOSEPH F. HAWKINS, FENWICK G. TAGGART, Providence.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. EDWARD W. MULLIGAN, Providence.

South Carolina

To Camp Sevier, Greenville, S. C., base hospital, from Fort Oglethorpe, Lieut. JOHN B. SETZLER, Newberry.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Fort Logan H. Roots, Capt. LAWRENCE R. CRAIG, Dillon.

To Fort Oglethorpe for instruction, Lieut. GEORGE K. NELSON, Columbia.

To Hoboken, N. J., for duty, from Camp Jackson, Capt. EDWARD E. BARRON, Manning.

Honorably discharged, Lieut. WILLIAM S. LYNCH, Scranton.

South Dakota

Honorably discharged, Capt. DAVID J. CARSON, Faulkton.

Tennessee

To Camp Bowie, Fort Worth, Texas, base hospital, from Fort Oglethorpe, Lieut. SAMUEL HUNT, Knoxville.

To Camp Custer, Battle Creek, Mich., from Army Medical School, Lieut. WILLIAM W. DAVIS, Memphis.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Sevier, Lieut. DORSEY T. GOULD, Lawrenceburg; from Fort Oglethorpe, Lieut. HENRY G. WALDROP, Memphis.

To Camp Gordon, Atlanta, Ga., to examine the command for mental and nervous diseases, from Washington, D. C., Lieut. JOSEPH P. SCHELL, Nashville.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. OWEN S. DEATHRIDGE, Nashville.

To Camp Kelly, San Antonio, Texas, for duty, Lieuts. RAYMOND D. HENDERSON, Humboldt; HUGH W. ALLAN, Knoxville.

To Camp Meade, Annapolis Junction, Md., base hospital, from Fort Oglethorpe, Lieuts. BEECHER L. OGLE, Knoxville; ALEXANDER J. BRYANT, Sharon.

To Army Medical School for instruction, Lieuts. MILTON C. WIGGINS, Cottage Grove; HUGH J. BAKER, Kingsport; MARK M. JETTON, and JOSEPH LIGON, Memphis.

To Camp Upton, Long Island, N. Y., for duty, from Army Medical School, Lieut. WALTER J. JOHNSON, Frankewing.

To Fort Oglethorpe, base hospital, Capt. JAMES A. VAUGHAN, Memphis; Lieut. SIDNEY S. EVANS, Ripley; from Camp Bowie, Lieut. JAMES B. STANFORD, Memphis; from Camp McClellan, Lieut. CLAUDE A. SYMONS, Memphis; from Camp Meade, Lieut. JOHN J. SHEA, Memphis; from Camp Wadsworth, Lieut. LAWRENCE J. LINDSEY, Covington; from Fort Oglethorpe, Major EDWARD C. MITCHELL, Capts. WILLIAM F. CLARY, DAVID M. HENNING, Lieuts. SHIELDS ABERNATHY, JAMES P. CARTER, BENJAMIN L. SCHOOLFIELD, Memphis; from Fort Riley, Lieut. LYMAN H. CHAPMAN, Memphis; from Memphis, Major FRANK D. SMYTHE, Memphis; from Newport News, Lieut. EMMETT R. HALL, Memphis. For instruction, Capts. JOHN G. MOSS, Johnson City; ROBERT B. LAYMAN, Knoxville; LELAND H. MILLIGAN, Morristown; CHARLIE F. ANDERSON, Nashville; Lieuts. HENRY P. SPENCER, Burns; CARL R. MARTIN, Coal Creek; JOHN H. HUFF; Cosby; MILTON B. SELIGSTEIN, Memphis.

To Hoboken, N. J., evacuation hospital, from Camp Crane, Capt. JAMES D. McPHEETERS, Chattanooga.

To Philadelphia, Pa., for instruction, from Camp Meade, Lieut. BEECHER L. OGLE, Knoxville.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction, and on completion *to his proper station,* from Camp Lee, Lieut. WILLIAM D. CAGLE, Labelville.

Honorably discharged, Lieut. JOHN G. SEAY, Germantown.

Texas

To Aberdeen, Md., Aberdeen Proving Grounds, for duty, from Fort Oglethorpe, Lieut. EDWARD C. BLACKWELL, Gorman.

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Capt. NATHANIEL T. MOORE, El Paso.

To Camp Bowie, Fort Worth, Tex., base hospital, from Fort Sill, Capt. TARLETON F. MOORE, Gaberton; from Fort Oglethorpe, Lieut. GEORGE T. VAN ZANDT, Cameron.

To Camp Gordon, Atlanta, Ga., to examine the command for mental and nervous diseases, from Fort McPherson, Lieut. CHARLES W. STEVENSON, Loraine.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. ROBERT V. MURRAY, Austin.

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Lieuts. WILMER A. HADLEY, Glazier; CHARLES C. CLEVELAND, Hamilton.

To Camp Joseph E. Johnson, Jacksonville, Fla., as gas defense instructor, from Camp Joseph E. Johnston, Capt. ARTHUR W. C. BERGFELD, Seguin.

To Camp Logan, Houston, Tex., base hospital, from St. Louis, Capt. WALTER C. JOHNSON, Pharr.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Sevier, Major CHARLES S. VENABLE, San Antonio.

To Camp Travis, Fort Sam Houston, Tex., for duty, Lieut. ROY L. AIGUIER, Dallas; from Corpus Christi, Capt. THOMAS P. POOLE, Eagle Lake.

To Camp Wheeler, Macon, Ga., base hospital, from New York City, Lieut. RALEIGH L. DAVIS, Big Springs.

To Fort Oglethorpe for instruction, from Camp Logan, Lieut. ELI E. BROWN, Dallas.

To Fort Sam Houston, Tex., for duty, Capts. ISAAC MAYHUGH, Barstow; JOHN W. SNYDER, Childress; ARTHUR E. SWEATLAND, Nacogdoches; Lieuts. EZRA E. DICKASON, Brownsville; PERRY G. HAYS, Sipe Springs; JAMES A. MURRAY, Walnut Springs.

To New Haven, Conn., for duty, from Fort Oglethorpe, Lieut. IVY STANSELL, Sanderson.

To New York City, Cornell Medical College, for instruction in military roentgenology, and on completion *to Hoboken, N. J.*, base hospital, from Fort Oglethorpe, Capt. WILLIAM R. FICKESSEN, San Antonio.

To Philadelphia, Pa., for instruction, from Fort Oglethorpe, Lieut. CARL B. YOUNG, Jr., Houston.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. ST. JULIAN R. MURCHISON, Marshall.

Utah

To Camp Kearny, Linda Vista, Calif., for duty, from Camp Kearny, Capt. GEORGE H. CRUIKSHANK, Vernal.

Vermont

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. JOHN W. HARVEY, St. Johnsburg.

To Camp Dodge, Des Moines, Ia., as division tuberculosis specialist, from Fort Riley, Capt. GEORGE L. BATES, Morrisville.

To Camp Upton, Long Island, N. Y., for duty, from Army Medical School, Lieut. LUTHER J. CALAHAN, Manchester Center.

To Hoboken, N. J., for duty, from Camp Dix, Major WILLIAM W. TOWNSEND, Rutland.

Virginia

To Fort McPherson, Ga., for temporary duty, Lieuts. LANDON E. STUBBS, Gloucester; ALBERT T. RANSONE, Hampton.

To Fort Oglethorpe for instruction, Lieuts. HAMIL S. SCOTT, Emory; ARTHUR H. DEEKENS, Lynchburg; from Fort Monroe, Lieut. SAMUEL M. FORD, Lebanon.

To Rockefeller Institute for instruction, and on completion *to Camp Pike*, Little Rock, Ark., base hospital, from Fort Oglethorpe, Lieut. JOHN O. BOYD, Roanoke.

To Army Medical School for instruction, Lieut. HARTWELL G. STONEHAM, Waverly.

To Boston, Mass., Harvard Graduate Medical School, for instruction in orthopedic surgery, from Fort Oglethorpe, Lieut. CHARLES W. MERCER, Richmond.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Dix, Lieut. RAYMOND C. HOOKER, Richmond. Base hospital, from Fort Oglethorpe, Lieut. PATRICK M. CARROLL, Rio Vista.

To Camp Greene, Charlotte, N. C., base hospital, from Camp Greene, Major GEORGE A. RENN, Norfolk.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. BASIL E. STRODE, Amherst.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Fort Oglethorpe, Lieut. THOMAS R. COLLIER, Hampton.

To Camp Sevier, Greenville, S. C., base hospital, from Atlanta, Lieut. EDWARD B. BROOKS, Chase City; from Camp Gordon, Lieut. LUCIUS G. GAGE, University; from Fort Monroe, Major LOMAX GWATHMEY, Norfolk; from Fort Oglethorpe, Capt. MINOR C. LILE, University; Lieuts. JOSEPH S. HUME, Norfolk; LEVIN F. MAGRUDOR, Richmond; LEROY W. HYDE, University; from Fort Riley, Capt. HENRY J. HAYES, Richmond; from University, Major WILLIAM H. GOODWIN, Charlottesville.

To Fort Oglethorpe for instruction, Capt. HUGH S. MAHOOD, North Emporia; Lieuts. A. NULL OSBORNE, Clinch; ISAAC E. WOLFE, Coeburn; from Philadelphia, Lieut. WILLIAM L. POWELL, Roanoke; from Richmond, Lieut. CARRINGTON WILLIAMS, Richmond; from Camp Wheeler, Lieut. LEWIS G. RICHARDS, Roanoke.

To Fort Riley, base hospital, from Army Medical School, Lieut. CLIFFORD A. FOLKES, Roanoke.

To Hoboken, N. J., for temporary duty, from Fort Oglethorpe, Lieut. SAMUEL A. RHYNE, Norfolk.

To New York City, Cornell Medical College, for instruction in military roentgenology, and on completion *to Hoboken, N. J.*, base hospital, from Fort Oglethorpe, Lieut. JOSEPH T. McKINNEY, Richmond.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM NELSON, Rustling.

Washington

To Camp Lewis, American Lake, Wash., base hospital, from Camp Fremont, Lieut. IRVING M. LUPTON, Spokane; from Camp Lewis, Lieut. HARRY C. BLAIR, Tacoma.

To Portland, Ore., for duty, Lieut. WARREN B. PENNEY, Tacoma.

To Vancouver Barracks, Wash., for duty, from Camp Fremont, Lieut. LEWIS B. COLLIER, Seattle.

Honorably discharged, Lieut. CARL O. LIND, Seattle.

West Virginia

To Camp American University, Washington, D. C., for duty, Lieut. STEPHEN W. BULL, Spencer.

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. LEROY J. BUTLER, Hansford.

To Camp Devens, Ayer, Mass., as member of the board examining the command for tuberculosis, from Fort Hancock, Capt. GEORGE H. BARKSDALE, Charleston.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. FRED W. BARGER, Hiawatha.

To Fort McDowell, Calif., for duty, from Fort Oglethorpe, Lieut. WALTER S. LINK, Parkersburg.

To Fort Oglethorpe for instruction, Capt. McRAE C. BANKS, Raleigh; Lieut. ERNEST J. WICHTERMAN, Masontown.

Honorably discharged, Lieuts. NOAH E. STEELE, Chauncey; MICHAEL P. LINK, Matewan.

Wisconsin

To Camp Grant, Rockford, Ill., base hospital, from Camp Dodge, Lieut. DONNE F. GOSIN, Green Bay.

To Camp Wheeler, Macon, Ga., as orthopedic surgeon, from Fort Oglethorpe, Lieut. BERNARD O. BENDIXEN, Kewaskum.

To Fort Oglethorpe for instruction, Capt. ANFIN EGDAHL, Menomonie; Lieut. CHARLES E. STOLZ, Milwaukee.

To Fort Riley for instruction, Lieut. CARLTON M. BEEBE, Sparta.

To Mineola, Long Island, N. Y., for duty, from Fort Riley, Lieut. HAROLD McM. HELM, Beloit.

To New Haven, Conn., for duty, from Fort Oglethorpe, Capt. MICHAEL R. WILKINSON, Oconomowoc.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. CHARLES A. CRITCHLOW, Mellen.

Wyoming

To Chicago, Ill., for instruction, from Fort Riley, Lieut. ROBERT H. SANDERS, Kemmerer.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Hookworm in the Mines.—California is carrying on a systematic campaign against hookworm in the mines of the state. The *Bulletin* of the state board of health for March contains an article on sanitation in the mines and the prevention of hookworm. Illustrations and specifications for sanitary conveniences to be used in mines are shown.

Birth Control Literature Not Obscene.—Judge M. T. Dooley, of the United States District Court at San Francisco, handed down an opinion, March 18, in the case of A. Belinski, charged with having put into the mail some of Margaret Sanger's birth control literature. He holds that the statute penalizing the posting of obscene matter does not include birth control or similar literature.

Full-Time Health Officers.—The death rate of Palo Alto, the seat of Stanford University, is about half that for the state. The city has a population of 6,000 and employs a full-time health officer, to which fact the low death rate is attributed. Since 1911, according to the *Bulletin* of the state board of health for March, there have been no deaths of infants under 2 years of age from diarrhea or enteritis, whereas during the same period in all other parts of the state there were 5,528 deaths of infants under 2. At the beginning of 1918 there were three known cases of tuberculosis in the city. The cost of the health department for 1917 was $3,310, or 56 cents per capita.

CONNECTICUT

Society Endorses Board.—The New Haven Medical Society at its meeting, March 7, adopted resolutions endorsing the board of health of the city and stating that any attempt to curtail the budget of the board should be regarded as a public calamity.

Health Survey.—At the request of the mayor of Middletown and other public and semipublic officials and organizations, Prof. Charles E. A. Winslow of the Department of Public Health, Yale School of Medicine, assisted by David Greenberg and Ira D. Joel of the same department, made a survey of health and sanitary conditions and the administration of the health service of Middletown. The results and their recommendations have been printed in a well illustrated pamphlet with an introductory article by Professor Winslow. It was found that there is considerable room for improvement of conditions in the city, and the officials and organizations asking for the survey have pledged themselves to carry out as far as possible the committee's recommendations, of which there are about forty specifically set forth. One of the things in need of correction is the incidence of malaria, about 200 cases of which were treated during the year 1917.

HAWAII

Report of Board of Health for 1917.—The report of the president of the Hawaii Board of Health to the governor for the year ending June 30, 1917, indicates that health in the islands was good, as shown by a decrease of 442 in the number of deaths and 2,573 in the number of cases of contagious disease. Diarrhea and enteritis, tuberculosis in all forms and pneumonia lead in the causes of death. Interesting data are given with reference to sanitation, mosquito elimination, rat destruction and examination, medical school inspection, foods, insane and leper hospitals, tuberculosis, etc.

Medical News.—The board of medical examiners of the territory in 1917 lost one member by death, Dr. W. L. Moore, Dr. Grover A. Batten being appointed to succeed him.—During the year ending June 30, 1917, 17 physicians were recommended for license, whose nationalities were as follows: American 10, Japanese 5, Chinese 1, Korean 1. On the date named there were 138 physicians in the territory licensed to practice, as follows: American 72, British 11, Japanese 44, Chinese 4, German 4, Portugese 1, Norwegian 1, Korean 1. By deaths and resignation, the number of physicians remains the same as during the previous year. The license of one

Japanese physician was revoked on account of "gross carelessness and manifest incapacity," according to the report of the board of medical examiners.——The president of the board of health, Dr. J. B. S. Pratt, attended the annual conference with Surgeon-General Blue of the Public Health Service in Washington, D. C., and also the conference of state and provincial boards of health of North America in April and May, 1917, making a full report to the governor of the work done at the conferences.

ILLINOIS

Will Require Practical Examinations.—The department of registration and education of Illinois has adopted the requirement that hereafter the examination for the license to practice medicine in Illinois will include practical examinations in pathology and bacteriology; surgery and gynecology; medicine, including pediatrics and neurology, and diseases of the eye, ear, nose and throat. These practical tests will be held at the Cook County Hospital, Chicago, immediately following the written examination.

Activities of the State Department of Health.—In the January number of the *Illinois Health News*, the bulletin of the department, a history is given of the legislation abolishing the old state board of health and creating the new department of health and the sloughing off of many duties not properly belonging to a health department, such, for instance, as the examination of applicants for license to practice medicine, midwifery, embalming, drugless healing, etc., which is now performed by the department of education and registration. The department now has a director and an assistant director, and the functions are classified under ten different divisions, which have been in operation since July, 1917. The service performed by each of these divisions is described in the bulletin, and the heads of each are named. There are five laboratories in different cities of the state—Springfield, Chicago, Mount Vernon, Urbana and Galesburg.

Chicago

Reconstruction Work.—Cripples in Cook County Hospital are being taught basket weaving, rug making, wood cutting and similar arts, in the manual arts department recently opened by the social welfare department of the hospital. A similar service for crippled soldiers will be rendered by the department under the direction of Miss Stesser. This instruction is undertaken as an economic measure, to offer an opportunity whereby the maimed and crippled may become self-sustaining.

INDIANA

Sanitary Meeting.—The annual convention of the Indiana Sanitary and Water Supply Association was held in Indianapolis, March 27 and 28. The membership of the association consists of mayors, waterworks superintendents, health officers and sanitary engineers.

Personal.—Dr. Harley W. Taylor, Rochester, suffered a fracture of four ribs and other injuries in a collision between a motor truck and the automobile in which he was riding, near Michigantown, March 20.——Dr. Anthony P. Witting, Evansville, was operated on at St. Mary's Hospital, Evansville, recently and is reported to be doing well.——Dr. James Y. Welborn, Evansville, has resigned from the board of trustees of the Vanderburg County Antituberculosis Society.

Inquiry Regarding Child Mortality.—At Gary, April 15, sixteen women agents of the federal Children's Bureau, began the second stage of their inquiry into conditions affecting children of preschool age. There are 4,622 mother of children under 7 years of age who will be visited for the purpose of discovering what adverse social, economic, and industrial conditions cause the death of large numbers of infants under 1 year of age. This inquiry will be supplemented by conferences which will begin about June 1, at which mothers of children under the age of 1 year will have an opportunity to consult a government expert on the care of their children.

IOWA

Meeting of State Medical Society.—The Iowa State Medical Society will meet at Fort Dodge, May 8, 9 and 10 for the 1918 session.

Personal.—The drugstore of Dr. U. S. Rogers, Washta, was destroyed by fire, March 18.——Dr. James B. Rogers, Independence, has been appointed bacteriologist at the Cincinnati Municipal Tuberculosis Sanatorium, succeeding Dr. Johannes Hermanies, Chicago, resigned.

Reporting of Venereal Disease.—The city physician of Davenport has recommended to the board of health that an ordinance be passed requiring that a report be made to the board of all cases of venereal disease. The recommendation was referred to the Scott County Medical Society for its consideration.

Miscellaneous.—At Mount Pleasant the local board of health passed a resolution recommending, for the approval of the state board of health, a plan of chemical or other treatment of industrial sewage from creameries, slaughter houses, canning factories, etc., before being discharged into the sanitary sewers.——At Rock Rapids the board of education has secured the services of a trained nurse to help to stamp out scarlet fever which has been prevalent in the schools the greater part of the winter.

Hospital News.—The mayor and city clerk of Boone have been instructed by the city council to enter into an agreement with Boone County to build a detention hospital on a lot belonging to the county. The county will assure one half of the cost.——Improvements to cost about $10,000 are to be made at the Santa Fe Hospital, Fort Madison. A separate ward is to be established for Mexican laborers.——A delegation from Grinnell recently visited Atlantic to inspect the new hospital. It is their intention to erect a similar hospital in Grinnell.

KENTUCKY

Health Board Not to Move.—After inspection of the present quarters of the state board of health at Bowling Green, and the proposed sites of Frankfort and Lexington, the house committee of the legislature has reported that in its opinion the immediate removal of headquarters will be inadvisable.

Merger of Board.—March 27, Governor Stanley signed the bill merging the state tuberculosis commission and the hotel inspection department with the state board of health. The bill creates a new state board of health to be composed of ten members, of whom all but one are to be appointed by the governor.

Personal.—Dr. Addie M. Lyon, county health officer at Sandy Hook handed in his resignation, giving his reason the opposition he had encountered in enforcing the quarantine regulations of the state board of health. The resignation was not accepted. Dr. Lyon was urged to continue his services.——Dr. L. A. King has been appointed local director of free dental service in the fourth district, comprising Henderson, Union, Hopkins and Webster counties.——Dr. Jesse I. Whittenberg, county health officer for Jefferson County, has resigned, and a successor will soon be named. The salary of this official was reduced from $3,000 to $2,500 per year by the new board of county commissions several weeks ago. Dr. Clarence H. Harris, a member of the county board of health, has been elected county health officer pro tem.——Dr. David C. Morton has resigned as a member of the board of directors of the Louisville Municipal Tuberculosis Sanatorium and has been succeeded by Mr. Isaac Hilliard.——Dr. Argus D. Willmoth, Louisville, has been appointed a member of the state tuberculosis commission.——Drs. Henry Enos Tuley, George S. Coon, Eugene Y. Johnson and George A. Hendon have been sworn in as members of the board of directors of the Louisville Municipal Tuberculosis Sanatorium.

Miscellaneous.—The annual meeting of the health officers of the state which convenes in Louisville, May 1, for a three-day session, was arranged for at the meeting of the state board of health, March 20. At this meeting the meningitis situation in the state was discussed, and the Flexner serum treatment was approved. It was reported that out of eighteen cases of meningitis at Berea, there were no deaths.——The meningitis situation at Glasgow has improved, following the investigation by Dr. Lillian H. South, Bowling Green, bacteriologist of the state board of health, and Dr. J. Paul G. Prebles of the United States Public Health Service.——Dr. W. H. Dunn, a chiropractor in Louisville, March 1, was tried in the criminal court for practicing medicine without a license. His defense was that he did not administer medicine and did not practice surgery. Dunn was formerly fined $50 by the jury of the charge.——A beautiful service flag was raised at the Jewish Hospital in honor of nine nurses who have joined the Army Red Cross. Capt. Virgil E. Simpson of Base Hospital Unit No. 40, now at Camp Zachary Taylor, made the principal address.——A service flag bearing forty stars has been unfurled at the University of Louisville, medical department, in honor of those members of the teaching staff who are now actively in the service of the Medical Corps of the Army.

LOUISIANA

Personal.—Dr. Henry B. White, Gueydan, has resigned as a member of the state board of health.

Health Officer Barred from Plant.—On March 20, President Oscar Dowling of the state board of health, with two inspectors, was refused admission to the shipbuilding plant of the United States Shipbuilding Board at Slidell.

New Hospital Unit.—Mrs. John Debeit, New Orleans, has contributed $100,000 toward the initial equipment of a base hospital unit which is to be sent to Italy under the directorship of Major Joseph A. Danna, New Orleans. It will be known as the Loyola Unit.

Hair Brush Abolished.—On account of the menace of the public hair brush, which is said to be responsible for 90 per cent. of baldness, as well as being the conveyor of skin infections, the Louisiana State Board of Health has prohibited the use of the hair brush in barbershops, hair-dressing establishments and other public places.

Constructive Health Recommendations.—In a report made by the bureau of venereal diseases to the state board of health, March 22, the following recommendations were made: compulsory treatment of venereal diseases in all their phases; a certificate of good health by a physician as prerequisite to the issurance of marriage licenses, and the establishment of an arsphenamin factory at Alexandria. The report was adopted with slight amendments. Dr. Dowling was authorized to call for plans for laboratory buildings at New Orleans and Alexandria.

MARYLAND

Personal.—Dr. James W. Magruder, Baltimore, who has resigned as secretary of the federated charities to become associated with the Maryland War Commission on Camp Activities, was tendered a farewell dinner by the Baltimore Social Service Club, March 27.

Sanitary District.—A bill has been introduced into the house creating a sanitary district in Baltimore County, consisting of a wide belt of territory encircling the city of Baltimore to include Sparrow's Point, Back River, Towson, Catonsville and Relay. The plan must have the approval of the state board of health.

Would Revise State Law.—A bill has been introduced in the house by Delegate Benson of Baltimore County, which revises the state laws, regulating the practice of medicine, surgery and osteopathy and creates a state board of examiners to consists of eleven members, eight of whom are to be selected by the Medical and Chirurgical Faculty of Maryland, two by the Maryland State Homeopathic Medical Society and one by the Maryland Osteopathic Association.

Patients Leave Fort McHenry.—Departing in units of various sizes, 174 men were transferred, April 12, from the U. S. Army General Hospital No. 2 at Fort McHenry to government hospitals in other cities. Of the number leaving, eight were officers and the remainder enlisted men. The largest unit was sent to New Haven, Conn. Others went to Lakewood, N. J.; Fort McPherson, Ga.; the Walter Reed General Hospital, Washington, D. C., and Cape May, N. J. With the department of these men, only eight patients were left at the fort, but others are expected shortly.

Physical Training for Schoolchildren.—One of the small but important bills recently passed by the general assembly of Maryland provides for physical education and training in the public schools. This bill was introduced at the request of Dr. William Burdick, director of the public athletic league. It directs that physical training shall be given the pupils in all public schools of the state and in all schools aided or maintained by the state. In the elementary public schools this is to consist of at least fifteen minutes on each school day and one hour outside the regular classroom work in each school week. In public high schools, the period of physical training is to be at least one hour in each school week and two hours of directed play and athletics for all pupils outside of the regular classroom work in each week.

MASSACHUSETTS

Miscellaneous.—Harvard has voted certificates of honor to every member of the university who gives up his studies to enter either branch of the service.

License Revoked.—The Board of Registration in Medicine of Massachusetts has, it is reported, suspended the license of Dr. Joseph M. Tessier, New Bedford, to practice in the state.

Harvard Appoints New Professors.—Assistant professorships in medicine and surgery, etc., were recently filled in Harvard as follows: Drs. Howard A. Lothrop and Hugh Cabot, in surgery, Worth Hale in pharmacology, Benjamin L. Ragle, in medicine, and Robert L. De Normandie in obstetrics.

Personal.—Dr. Morton Prince, Boston, has been given a decoration by the Emperor of Japan.——Dr. J. Armand Bedard of Lynn has arrived in France.——Dr. William H. McBain, associated medical examiner (coroner) of Malden and Medford districts, has been appointed city bacteriologist of Malden, succeeding Dr. Clarence H. Staples, resigned.——Dr. LeRoy A. Woodward has been appointed surgeon for the outpatient department of the Worcester City Hospital.

Hospital at Holden.—In order that the private hospital at Holden, which has been in operation for the past three years, might not be discontinued, as was contemplated, the citizens organized a corporation for the purchase of the buildings and equipment of the Holden Cottage Hospital, and it will now be run under new management for the benefit of the town. Among the physicians connected with its staff and management are Drs. Walter H. Welch and Frank H. Washburn.

MICHIGAN

Personal.—Dr. Lyman S. Crotser, Petoskey, fell, March 25, fracturing his hip. He is under treatment at a local hospital.

Sterilization of Defectives Unlawful.—The act of the Michigan legislature of 1913, which authorized the sterilization of mentally defective inmates of public institutions was declared unconstitutional by the supreme court of the state, March 28.

Sanatorium Annex for Soldiers and Sailors.—At a special meeting, March 22, the trustees of the Detroit Tuberculosis Sanatorium ordered the erection of a building to house soldiers and sailors invalided on account of tuberculosis. The new unit will cost $10,000 and will accommodate twelve patients.

Votes for Municipal Medical School.—The board of education of Detroit has voted in favor of taking over the Detroit College of Medicine and Surgery and of converting it into a municipal institution. The trustees of the college agree to turn over to the city, free of debt, the buildings and equipment of the college which are valued at approximately $160,000. The proposal provided that the present faculty should resign and that a new faculty be appointed by the board.

NEW YORK

Medical Scholarship for Women.—A scholarship in medicine for a college woman has been endowed by Mrs. E. T. Stotesbury and placed in charge of Dr. Elizabeth Thelberg of Vassar College. The gift was made because of the reported lack of physicians due to the war.

Gift for Women Students.—Columbia University reports a gift of $5,000 from an association of women physicians, which with gifts of $18,000 received from other donors will be expended for a new building for the use of women students. Additional laboratories will also be provided.

Red Cross House at Base Hospital No. 1.—The Red Cross House in connection with United States General Hospital No. 1, Gun Hill Road and Bainbridge Avenue, was opened, March 30. This is the first of a number of similar houses now being built by the American Red Cross at the larger base hospitals. It is intended as a lounging and rest-room for convalescent soldiers and as an administration center for the Red Cross field director, through whom relatives may obtain accurate information as to the welfare of the patient. These houses contain many features which will contribute to the comfort of the soldiers. There is a solarium, a women's reception room, billiard rooms, committee rooms, an assembly room and a diet kitchen.

Summer Training School.—The training of teachers for teaching the feebleminded, as well as special classes in the public schools, will be carried on in the Rome State Custodial Asylum during the summer, from July 1 to July 27. The course will be open to graduates of normal schools and teachers' training schools. The school is supported by the state and there will be no charge for tuition, but a charge of $20 for board and lodging in the institution. The asylum cares for 1,550 feebleminded and has fourteen teachers and 200 officers and employees. The work will be by lectures and practical work among the inmates. There are many vacancies for this class of teachers, who receive higher pay than teachers in general primary work. Information may be obtained from the superintendent.

New York City

Zionist Hospital Unit Ready.—A hospital unit, equipped at a cost of $259,000, by the women's branch of the Zionist movement, will sail for the Holy Land in a few days. The unit has a personnel of forty-one of whom fifteen are physicians. A hospital in Jerusalem has already been placed at the disposal of the unit.

Personal.—Dr. John Dorning has been reappointed by Mayor Hylan to the New York City Board of Inebriety.——Dr. Anna I. von Sholly, who is in service with the Women's Overseas Hospitals, was recently caught in the zone of fighting, and, at latest reports, was still cut off from her headquarters in Paris. She had gone into the fighting zone to prepare a new hospital for occupation.

New Clinic for Rehabilitation of Injured Soldiers.—Through the beneficence of an anonymous donor, New York is to have a new clinic and hospital devoted to the functional reeducation of maimed military men and civilians. The institution is to be opened within six weeks and will occupy a part of the plant formerly used by the New York Infirmary for Women and Children at Stuyvesant Square and Fifteenth Street. The institution is to be known as the New York Clinic for Functional Reeducation of Disabled Soldiers, Sailors and Civilians. The president of the organization is Dr. W. Gilman Thompson.

Health Department Undergoing Investigation.—In compliance with an order from Mayor Hylan an investigation of the health department is being conducted by the commissioner of accounts in cooperation with the civil service commissioner. The health commissioner, Dr. Lewis J. Amster, is sitting with these investigating bodies. The investigation is being made with a view of correcting alleged violations of the civil service law and of removing from the payroll the names of persons found to be illegally employed and reducing to their proper status all persons who are enjoying the emoluments of grades higher than those for which they took promotion tests. At a conference with the public health committee of the New York Academy of Medicine, Dr. Amster explained that he wished to determine whether the directors of the seven bureaus of the health department held their places legally under the charter and whether these bureaus were under proper authority of law. At the stated meeting of the section on pediatrics of the New York Academy of Medicine, resolutions were adopted protesting against the proposal to abolish the bureau of child hygiene. These resolutions were presented to the executive committee of the public health committee of the academy to emphasize the vital importance of the bureau to the welfare of the city.

OHIO

Chiropractor Convicted.—Torizo Tanaka, a Japanese chiropractor, who was conducting an elaborate office at Cleveland, and who had the legal backing of the combined chiropractic interests, was convicted of practicing medicine and surgery without a license and sentenced to thirty days in the workhouse and fined $250 and costs.

Miscellaneous.—On account of the scarcity of men physicians, Dr. William H. Peters, chief medical inspector of the board of health of Cincinnati, has announced that he has recommended that three women be appointed as district physicians. Waiving its rule against nonresident physicians, the board of health has appointed Dr. A. M. Freund, Appleton, Wis., as a member of the health staff.

Personal.—Dr. William B. Bryant, Dayton, has resigned from the city staff. He has been succeeded by Dr. Leo R. Courtright.——Dr. John E. Monger, Greenville, state registrar of vital statistics spoke on the value of vital statistics as an index to community health, before the March meeting of the Clark County Medical Society.——Dr. H. H. Goddard, of Vineland, N. J., who has been appointed head of the department of juvenile research of the state board of health, will report for duty, May 1. The salary is $7,500 a year.——Dr. Sara E. Stevens, Boston, visiting in Xenia early in March, will spend a year in Hawaii.——Dr. Virgil E. Hutchens, New Antioch, was operated on for appendicitis in the Hale Hospital at Wilmington, March 22.——Dr. George W. Wire, health officer of Wilmington, has resigned and Dr. Frank A. Peelle, Wilmington, has been appointed in his place.——Drs. Rollin M. Schwartz, Columbiana; Edwin W. Mitchell, Cincinnati, and Andrew W. Schiller, Salem, have been certified from the civil service list for appointment as health officers at Salem.

PENNSYLVANIA

Sanatorium Becomes a War Hospital.—The Markleton Sanatorium in Somerset County has been taken over by the government for a war hospital.

The Pennsylvania Association for the Blind.—The Pennsylvania Association for the Blind has offered to the members of the senior class of the medical school, University of Pittsburgh, a prize for the best essay of 2,000 words on the prevention of blindness. The committee on award consists of some of the best known oculists and laymen in western Pennsylvania. It is expected to make this offer annually to each senior class. The prize will be $100.

License Revoked.—April 10, the Pennsylvania Bureau of Medical Education and Licensure revoked the license of Dr. Nathan C. Kartub of East Vandergrift, who had pleaded guilty and was convicted "of murder in the second degree." The bureau also revoked the license of Dr. Frank J. Kenney, who had been convicted and plead guilty on a charge of larceny. According to reports, Frank J. Kenney was arrested in November, 1917, in connection with a diploma mill scandal in Boston, pleaded guilty to an indictment charging him with larceny and was sentenced "to six months in the common jail."

Conference of Industrial Physicians.—The sixth conference of the Industrial Physicians and Surgeons of Pennsylvania and the second meeting of the Pennsylvania Chapter of the American Association of Industrial Physicians and Surgeons were held jointly in Harrisburg, April 16. The meeting assembled under the direction of the Pennsylvania Department of Labor and Industry in the hall of the house of representatives. Among the questions taken up were those relating to health hazards to women as a result of war emergency work and the reconstruction and rehabilitation of the injured and diseased in industry as well as in war. Dr. Francis D. Patterson, chief of the division of hygiene and engineering of the department of labor and industry, presided at the sessions which lasted from 9 a. m. to 6 p. m. Among the speakers were Dr. Loyal A. Shoudy, chief surgeon in the Bethlehem Steel Company; Dr. Edward Martin, Philadelphia; Major Joseph C. Bloodgood of Baltimore; Dr. Alfred Stengel, professor of medicine at the University of Pennsylvania, and Dr. John B. McAlister, past president of the medical society of Pennsylvania.

Personal.—Dr. Lowell M. Gates of Scranton is president of the New American Bank of Commerce which opened in Scranton, March 16.——Dr. Roger R. Rupp, Lehighton, has succeeded the late Dr. John W. Luther as chief surgeon of the Palmerton Hospital.——Dr. John A. Klump, Williamsport, succeeds Dr. Albert F. Hardt as member of the Middle Judicial District Exemption Board of Appeals.——Dr. Edward S. Dougherty, Ashley, was severely injured recently when an automobile in which he was riding crashed into a telegraph pole.——Dr. John G. Wilson, Montrose, has been appointed resident physician at the Hillside Sanitarium for Mental Defectives and Indigents, near Scranton.——Dr. James W. Harper, Forest Grove, has accepted a surgeonship with the Westinghouse Electric Company, Pittsburgh.——Dr. Irving Gellman, a native of Odessa, Russia, who is a graduate of the College of Physicians and Surgeons of Boston and who has done a great deal of tuberculosis work in connection with the Montefiore Home, Bedford Hills, N. Y., and with the Minnesota State Sanatorium, has been appointed resident physician to the state sanatorium for tuberculosis at Hamburg.

Philadelphia

New Section of College of Physicians.—The College of Physicians has organized a section on industrial medicine and public health, which will hold meetings in October, December, February and April of each year.

Medical Club Reception.—April 19, a reception was tendered to Rear-Admiral J. M. Helm, U. S. Navy, Commandant, Fourth Naval District, and Rear Admiral Benjamin Toppan, U. S. Navy, Commandant, Philadelphia Navy Yard, at the Bellevue-Stratford Hotel, by the Medical Club of Philadelphia.

Personal.—Drs. Edward A. Mallon and Max F. Herrman have been appointed chief visiting physicians to St. Joseph's Hospital.——Dr. William E. Quicksall has been appointed laryngologist to St. Joseph's Hospital.——Dr. George A. Knowles has been appointed by Governor Brumbaugh, trustee for the state hospital, Norristown.——Dr. Annie J. Gardner Young has recently been appointed resident physician in the Pennsylvania State Sanatorium for Tuberculosis at Hamburg.

RHODE ISLAND

First Aid and the Medical Practice Act.—The *Bulletin* of the Rhode Island State Board of Health calls attention to the violation of the medical practice act by manufacturing plants which allow the "first aid" treatment applied by an attendant who is not a physician to suffice in case of injuries to employees. It says it is absurd to have strict regulations regarding the practice of medicine and the licensure of physicians and then permit the treatment of dangerous wounds by a nurse or other nonqualified person.

TEXAS

Nurses Association Organized.—At Port Arthur, April 1, the Graduate Nurses Association of Port Arthur and vicinity met and dissolved to form the Jefferson County Nurses Association, with the idea of becoming affiliated with the state nurses association. Officers were elected.

VIRGINIA

Miscellaneous.—Announcement has been made of, and bids asked for, the construction of a modern hospital corps school at the Hampton Roads naval base. The structure will be of brick, 156 by 80 feet, three stories high and will be provided with laboratories and all modern facilities for teaching purposes. The new unit memorial hospital for colored patients, now under construction at Richmond, will be seven stories high, will be fireproof, will have large sun porches on every floor, and will be a completely designed and equipped modern hospital, which may be operated in connection with the other units of the hospital or independently. The building is of brick with ornamental limestone trimmings.——The state legislature has voted to increase the appropriation for community sanitation and medical inspection conducted by the state board in connection with the International Health Board from $7,200 to $15,000. Under the stimulus of this work, a number of counties have now employed full-time health officers, and it is proposed that the citizens of the state should furnish an additional sum of money equal to that appropriated by the two bodies named for the purpose of extending the work.——Steps have been taken by Health Officer Roy K. Flannagan of Richmond to carry out the plans of the federal health service in combating venereal diseases.——At Norfolk, the county board of health, March 7, adopted ordinances prohibiting the pollution of the bay which is used for bathing purposes. This will require the cottage communities at Ocean View, Willoughby Beach and on the bay side to install plumbing and waste disposal arrangements. An ordinance was also adopted providing for the regulation and sale of meats and foods in the county, as well as for their preparation. Ordinances requiring the reporting of communicable diseases and regulating vice for the protection of men in the service were also passed.——Dr. Mosby G. Perrow, health officer of Lynchburg, reports that, during the last twelve months, at least fifty letters have been received at the health office asking for the date of birth of former citizens of Lynchburg. These letters, which could not be satisfactorily answered, have come from New Zealand, Australia, South Africa and from many places in this country. There were 740 births reported in 1917, but the health officer believes that at least 100 were not reported. Reporting of births began in 1910 and has been steadily improving.——The Richmond Antituberculosis Association has rejected the proposition of the city health department to place the association's nurse under the direction of the health department.——Governor Davis has signed a bill passed by the legislature amending the health law in regard to the appointment of local boards of health throughout the state.——The bill for an increase of salary for the state commissioner of health, Dr. Ennion G. Williams to $5,000 a year has been vetoed by Governor Davis. He recommends that the salary be made $4,000.——Richmond, during 1917, had the lowest death rate in its history, 16.92, and also the lowest typhoid death rate, 0.97.——Among the health bills passed by the present session of the legislature and signed by Governor Davis are bills to provide for public health nursing and medical inspection of schoolchildren.——A bill for the compulsory use of the prophylactic treatment to prevent ophthalmia neonatorum has been passed by the state legislature. The prophylactic will be furnished free by the state board of health.

CANADA

Personal.—Capt. Robert S. Armour, R. A. M. C., Campbellford, Ont., has been mentioned in despatches for meritorious work in East Africa. He is a graduate in medicine of the University of Toronto, 1915. He is at present in charge of a base hospital in the East African expeditionary force.——Lieut.-Col. Henry D. Johnson, Charlottetown, P. E. I., is in Toronto to look for a site for new medical stores. He returned from overseas a short time ago.——Dr. J. McKelvey Bell, Eufaula, Alta., director of medical services for the Invalided Soldiers' Commission, is in Toronto to talk over the affairs of that body with local representatives. It is likely that Capt. Edward Ryan, Kingston, will be continued in charge of this district.——The rank of surgeon-general has been abolished in Canada, and in the future the officers who have been known by this title will be addressed as either lieutenant-general or major-general.

GENERAL

American Public Health Association.—The American Public Health Association meeting for 1918 will be held in Chicago, October 14 to 17. The central theme of the meeting will be "The Health of the Civil Population in War-Time."

To Standardize Hospitals.—At a recent meeting of the Board of Trustees of the American Medical Association, funds were appropriated to permit the Council on Medical Education to extend its work of standardizing and listing such hospitals as, on investigation, shall be found in position to furnish acceptable internships for medical graduates. In 1914 the Council issued a list of such hospitals which was revised and reissued in 1916. Another revision will appear this summer.

Fatigue and Communicable Diseases Among Sailors.—In an investigation into the prevalence of communicable diseases by the division of sanitation of the bureau of medicine and surgery of the Navy Department, it was decided that fatigue is a factor in the spread of these diseases, and that "the attempt to make a sailor too rapidly is to invite disaster." This has been shown and is the subject of comment in the report comparing thoroughly seasoned men and recruits at the various training stations.

Change in National Institute.—The National Medical Institute of Mexico, founded in 1890 for research on and exploitation of the flora, fauna and climatology and geography of Mexico has been transformed into the Institute of General and Medical Biology by a recent decree. The institute has been engaged in the study and classification as well as the action of native plants, among them being axocopaque, or native wintergreen; yoloxochitl, which has action resembling that of digitalis; candelilla, which was said to have antisyphilitic action, an assertion which on investigation was found not to be true, though the plant has proved an important source of wax; and various other plants with diuretic and purgative action.

Early Graduation.—As a result of the agitation a year ago for the adoption of the continuous session for medical students, several schools provided that the senior session should begin in the summer of 1917 immediately following the class of the junior year, by which plan those students were graduated in February of the present year, instead of in June. The schools thus far reporting are Bowdoin Medical School, Portland, Me.; Columbia University College of Physicians and Surgeons, New York; Fordham University, School of Medicine, New York; University and Bellevue Hospital Medical College, New York; Tufts College Medical School, Boston, and St. Louis University School of Medicine, St. Louis. Rush Medical College, Chicago, and Leland Stanford Junior University School of Medicine, San Francisco, have the quarter system under which the sessions are continuous.

Conference on Social Work.—The National Conference of Social Work will hold its forty-fifth annual session at Kansas City, Mo., from May 15 to 22. Among the themes of papers and addresses on the program and topics for discussion are the care of convalescents, medical inspection of schools, public health nursing, hospital social service, nutrition, health centers, a national program of infant welfare, national salvage of the handicapped, preparing the soldier incapacitated by nervous or mental diseases for return to civil life; this last topic is the subject of discussion by Major Richard Hutchings, M. R. C., U. S. War Department, Washington, D. C. "Types of After the War Problems," by E. E. Southard, director of the state psychopathic hospital, Boston, is the topic discussed by C. Macfie Campbell, of the Phipps Psychiatric Clinic, Johns Hopkins Hospital, Baltimore. The "Care of the Feebleminded: Results and Significance of Mental Hygiene Work in the Army," to be handled by Dr. Frankwood E. Williams, medical director of the National Committee for Mental Hygiene, New York City, is a further topic of interest to the profession. Under public agencies

and institutions there will be a discussion of private and state hospitals, sanatoriums, almshouses and jails. Infant mortality and Miss Julia Lathrop's efforts to save 100,000 babies this year out of the 300,000 whose lives needlessly have been lost each year is another topic that will be discussed.

CENTRAL AND SOUTH AMERICA

School of Preventive Medicine at Havana.—Dr. Pazos, of the public health service of Cuba, is agitating for the organization of a school of preventive medicine to train a corps of expert hygienists at Havana. The medical organizations of the country are sustaining his appeal.

Training School for Nurses in Costa Rica.—The *Gaceta Medica* of Costa Rica states that last year the medical department of the University of San José, Costa Rica, founded a training school for nurses. The school is in charge of Prof. B. Hernandez. Prof. C. Pupo was dean of the medical school last year. Prof. E. Rojas is the present dean.

Pedagogic Congress in Colombia.—A gathering of teachers, physicians, school inspectors and others was held recently at Bogota to discuss subjects connected with child welfare. The faculties of medicine, law and engineering of the university were prominent in the debates, and the resolutions adopted by the gathering call on the government for a number of promising reforms.

Death of Castilla.—The republic of Colombia is mourning the recent death of Dr. R. R. Castilla, a prominent physician who took a leading part in medical and civic matters, serving as chief of the public health service, editor of the *Gaceta Medica*, and organizer of the annual gatherings of medical men. He planted the first rubber plantation and cinchona plantation in the country, introduced coffee plantations and the cultivation of the potato in regions previously deemed incapable of raising them, and did much to raise the standard of the stocks of horses and cattle in the country and open up the mineral springs. He received his medical training in France and remained to practice medicine at Paris for a number of years. Among his publications was one on a sign of valvular stenosis. The *Repertorio* of Bogota comments that the 80 years of his life were crowded with energy and service.

Medical Congress of Colombia.—The third national gathering of the physicians of the Republic of Colombia was held recently at Cartagena. Among the numerous progressive resolutions adopted were some to the effect that the fight against tuberculosis requires the cooperation of parents, teachers and clergy besides official state support and the work of physicians, dentists and veterinarians. Other resolutions were that a certificate as to health conditions should be required in renting a house, and that the physician should persuade the head of the household to notify the authorities when there is a case of tuberculosis in the family, the physician thus respecting professional secrecy while accomplishing the desired notification. Another resolution appealed to the government to supply the drugs to cure tropical anemia, either gratuitously or at cost. It was also voted that the local authorities should take the necessary prophylactic measures. Other measures on which the state was urged to take action were the foundation of institutes of toxicology in the different centers of population, study of the great question of immigration, legislation to protect the public against unqualified practitioners of medicine, appointment of medical school inspectors, and free dispensaries for venereal diseases. The final resolution advocated the organization of the profession along the lines that work well in other countries.

FOREIGN

Miss Stern Appointed Professor at Geneva.—Privatdozent Lina Stern has been appointed professor extraordinary of physiologic chemistry at the University of Geneva.

Water-Bed Pavilion at Vienna.—The *Nederlandsch Tijdschrift* mentions that the Allgemeines Hospital at Vienna has equipped one pavilion with water-beds. There are fourteen rooms, each with from two to four water-beds, 100 water cushions, and 300 air cushions. It is said that many of the wounded and other patients who could find no relief before have been materially benefited by these water contrivances.

The Medical Service of the Portuguese Troops in France.—The *Medicina Contemporanea* relates that there are now nine Portuguese ambulances at the front. Several are advanced surgical stations. One, from last August to date of writing had had 2,738 operative cases. The Portuguese force has had 442 men killed, including six officers and nine men succumbing to gassing; 111 have been disqualified by sickness.

Prize for Work on Physical Science.—The *Gazzetta degli Ospedali* says that the Royal Academy of Sciences of Turin, Italy, has announced a prize of 26,000 lire ($5,200), to be awarded for the most remarkable and most celebrated work on any of the physical sciences published in the four years ending Dec. 31, 1918. The prize fund is a bequest from a senator of the realm, T. Vallauri. Competition is open to Italian and foreign scientists, and the term "physical sciences" is to be taken in the broadest sense.

Typhus in Portugal.—The city of Porto is suffering from an epidemic of typhus. Three hundred and fifty-two cases with twenty-three deaths were reported in the week ending March 5. This number is 148 less than the cases of the preceding week, but since then the number has risen again. Prof. R. Jorge is in charge of the campaign against the disease, and energetic measures are being taken to stamp out the epidemic. Scattered cases were reported elsewhere the same week, one in Lisbon. Typhus occurs nearly every year at Lisbon. Only twelve years have passed since 1882 without from one to ten cases of typhus at Lisbon, according to the *Medicina Contemporanea*.

The French Medical Journals and the War.—Some statistics have recently been published showing that of the 345 medical and other scientific journals published in France before the war, about 270 have suspended publication. Others have changed from weekly to a monthly issue and others issue only four numbers a year. The total quantity of the paper used by them now does not amount to more than 35 tons a month, less than half that used daily by a newspaper. The important discoveries and experiences of the war and the lessons from them have been spread broadcast by the medical journals, so that surgeons and physicians have been able to keep abreast of progress and thousands of lives have been saved. The organized medical press in France is pleading with the authorities for special concessions during the period of the prevailing scarcity of paper, but no heed has been paid the appeal as yet.

Deaths in the Profession Abroad.—M. S. Bombin, a leading syphilologist of Madrid, aged 71.——**J. S. de Figueroa** of Barcelona, editor of the *Gaceta Medica Catalana* and inspector of the public health service, aged 32.——**N. Granes** of Madrid, aged 70, editor of the *Progresos de la Clinica*.——**C. Ruata,** formerly professor of materia medica at the University of Perugia, author of numerous works on hygiene and public matters and also of works denouncing vaccination against smallpox. He was president of an international anti-vaccine society.——**P. Imbriaco,** aged 72, long a medical inspector in the medical department of the army and president of the Scuola di applicazione de sanita militare, located at Florence. He published a number of works on war surgery and the effects of projectiles.——The *Nederlandsch Tijdschrift* reports the death of Prof. **O. v. Angerer** of Munich, aged 68, author of numerous works on surgical questions and since 1917 editor of the *Zeitschrift für aerztliche Fortbildung*. He was called to the chair of surgery at the University of Munich in 1885.

PARIS LETTER

Paris, March 14, 1918.

Work of the Medical Department of the French Army at the Front

At the meeting before the last of the Académie de médecine, Dr. Sieur, medical inspector, showed that considerable progress had been made by the Service de Santé since the beginning of the war and detailed the work that this service is doing at the present time. The wounded are being brought in early. Not more than from four to six hours elapsed between the time of wounding and the arrival of the patient at one of the advanced ambulances. More than this, whenever it is possible, advanced first aid posts are established where extremely urgent operations can be done. In order to give such immediate care as is necessary in these cases, advanced ambulances have been organized, where, during offensive action, wounds of the soft parts can be treated, as well as the recuperable and those who cannot be transported, and where the sorting of the wounded may be done with a proper regard for their distribution to the evacuation hospitals and certain special formations farther back.

In the evacuation hospitals, the hospitalization quarters are organized adjacent to the quarters for the evacuable. It is in these quarters that the surgical automobile ambulances have been installed, where cases of head, chest and abdominal wounds can be treated with much dispatch. In short, if the condition of the wounded permits it, only fracture cases are sent to the special hospitals established farther back behind the lines. The evacuation hospitals, one for each army corps, are arranged to receive the wounded who are sent to them directly by the receiving posts and by the advanced ambulance groups. In case the admissions to the hospital are greater than the number that the hospital can take care of, there have been established in the zone of the *étapes* hospitals known as *hôpitaux de liaison chirurgicale*, where the postponed suturing and the secondary suturing can be done on those patients whose wounds have been dissected free of damaged tissue, but not sutured, in the front line formations.

Because of this arrangement it is now possible to secure primary wound healing even in those cases which heretofore have been regarded as most grave. The results obtained are excellent. Dr. Sieur has been able to restore to the army 78 per cent. of the wounded after a hospital stay of not more than twenty-eight days on an average.

Late Migration of Rifle Bullet from the Inferior Vena Cava to the Right Ventricle

Dr. Tuffier recently reported a typical case of tardy migration of a war projectile in the circulatory apparatus. The soldier had been wounded by a rifle bullet in the right lumbar region. The first intervention consisted of a simple dissection of the lumbar wound. A month later a roentgenogram revealed the bullet at the level of the first and second lumbar vertebrae, about 9 cm. from the anterior wall. Eight days later, a second roentgenogram showed that the bullet had disappeared from its original location and that it was then in the heart itself, moving synchronously with the pulse beats. The patient, who until then had not complained of any symptoms, said that he was suffering from oppression and distress, anginous in character. The operation was proceeded with, but had to be stopped soon after the flap had been cut in the chest wall because the patient presented symptoms of respiratory arrest, thready pulse, dilatation of the pupils and finally syncope. Under proper treatment the immediate danger was overcome, and the patient felt fairly well during the next two days, but on the third day he died suddenly.

The necropsy disclosed that the bullet had entered the body in the lumbar region, furrowed the anterior surface of the right kidney (the superior portion of this kidney had undergone atrophy, doubtless the result of the traumatic obliteration of a branch of the renal artery) and subsequently entered the vena cava, where it had burrowed in the rear outer wall of the vessel a real *logette en nid de pigeon* of the internal tunic (dry wound of the vena cava). After six weeks, the bullet left this position, reached the auricle and then dropped into the right ventricle, where it was found embedded in the myocardium.

LONDON LETTER

LONDON, March 19, 1918.

The Food Situation

Under the present system of rationing, the allowances of some of the principal articles of diet are greatly limited. But, excepting in the case of sugar, our position is much better than that of Germany, as is revealed by the following allowances of staple foods in London and Berlin:

	London	Berlin
	Ounces	Pounds Ounces
Butter and margarin	4	2¾
Meat	20	8¾
Sugar	8	8¾
Potatoes	Unlimited	7 10½
Bread	Unlimited	4 4¼

Moreover, in the case of persons engaged in heavy work, it is proposed to allow extra rations, if supplies permit, as soon as possible after April 7. The supplementary ration in the first instance will be limited to bacon, rabbits, poultry, and meats other than fresh butchers' meat. At the outset the ration will be uniform for all persons classed as heavy workers. Provisionally it is expected to amount to an increase of 50 per cent. above the present ration. With a view to a possible differentiation later either in respect of the meat ration, or of other rations, the work people qualified for extra supplies will be graded in three classes: (*a*) men engaged in very heavy industrial work, and generally exposed to weather or heat; (*b*) men in agricultural work, and (*c*) men in heavy industrial work. The supplementary ration will be granted to women engaged in work corresponding to that of men in Classes A and B, but not to women doing ordinary factory work, which does not involve exceptional physical strain or exposure to heat or weather. It is expected that the total number of persons qualified to apply for the supplementary ration will be about one seventh of the population.

The Smallpox Outbreak in London

The outbreak of smallpox in the East End of London so far has not increased to any extent. The health authorities have closed the street in which the first cases occurred. They do not believe that the few cases of smallpox that have occurred need give rise to serious alarm. So far outbreaks of smallpox in London have appeared in cycles, and one of these cycles was due last year, but not a single case was then reported in the whole of London. In 1916 there was only 1 case; in 1915 there were 11, 10 of which occurred among Belgian refugees; in 1914 there was 1 case, in 1913 1, in 1912 there were 5, and in 1911 there were 70. Between 1904 and 1911 there were 60 cases; in 1904 there were 449, and between the winter of 1901 and the spring of 1902 there were 7,916.

The Treatment of Venereal Diseases

Considerable attention continues to be given to the problem of venereal diseases. At a meeting of the National Council for Combating Venereal Diseases, Sir Thomas Barlow, who presided, said that the government scheme has now been on trial for a year, and he feels sure that after another year treatment centers will have been established in nearly all towns. Lady Barett, M.D., said that experience at the venereal clinics has shown the need for further beds for infected pregnant women after repeated miscarriages and stillbirths. Gonorrhea is more difficult to cure than syphilis, especially during pregnancy, and beds are required not only for the child's sake but even more for the mother's. Dr. W. G. Savage, health officer for Somersetshire, complained that the government scheme is framed only for urban conditions. In rural districts, owing to the long distance from clinics, traveling expenses will have to be paid, but even this does not meet the loss of time. He suggested that the clinical medical officer, who should be a whole-time man, should go to the villages and make a temporary clinic of the office of the local physician, with whom he can talk cases over.

Air Raid Shelters and Infection

During the air raids, a large proportion of the population, especially women with children, take refuge in various shelters, such as underground railway stations and large buildings. Among the latter are the government schools, which are scattered all over London. The school medical officer has presented a report on the connection between crowding in air raid shelters and the increase of infectious disease. He finds that the prevalence of disease has risen in definite relation to times of crowding. The conclusion reached is that it is an open question whether recourse to shelters is not a more serious danger than the small risk that would be incurred if they were not used.

Marriages

LIEUT. WALTER LEE BRANDON, M. R. C., U. S. Army, on duty at Fort Sill, Okla., One Hundred and Fortieth Field Hospital, to Miss Lola Clark, both of Broseley, Mo., at Lawton, Okla., April 4.

MAJOR PHILIP STANLEY CHANCELLOR, M. R. C., U. S. Army, Santa Barbara, Calif., to Mrs. Charlotte Thorne Lewis, at Montecito, Calif., April 3.

LIEUT. JOHN WILLIAM MANN, M. R. C., U. S. Army, Pittsburgh, to Miss Naomi Pries of Lancaster, Pa., at Portland, Me., about March 28.

DAVID ROSWELL ROTHROCK, Milton, Pa., to Miss Zella O. Stadler of Watsontown, at Milton, Pa., March 29.

LEO RUDOLPH MOJOEWSKY, Cincinnati, to Miss Emilie Fries of Covington, Ky., March 26.

ELVIRA DUDLEY DEAN to Mr. Frank D. Abell, both of Morriston, N. J., April 2.

Deaths

Lieut.-Col. William W. Reno, Medical Corps, U. S. Army; Michigan College of Medicine and Surgery, Detroit, 1900; aged 45; a Fellow of the American Medical Association; commissioned lieutenant, Medical Corps, U. S. Army, 1901; captain in 1906; major in 1910, and lieutenant-colonel in 1917; died at sea, March 21, 1918, disappearing from U. S. S. *Susquehanna* while returning home invalided from France. Colonel Reno was conspicuous for pioneer work with the ambulance company and field hospital, the efficiency of which organizations was promoted by his initiative. His interest in the physical efficiency of the individual soldier was manifested in his study of the soldier's foot, the results of which he published. He was a frequent contributor to medical journals on varied subjects pertaining to the duties of the military medical officer. While instructor at the training camps for medical officers he endeared himself to every officer with whom he came in contact by his kindly tact and consideration.

William W. Tarvin, Covington, Ky.; Medical College of Ohio, Cincinnati, 1886; aged 53; a Fellow of the American Medical Association; formerly a member of the staff of the Speer's Memorial Hospital, Dayton, Ky., and surgeon of the Covington Protestant Children's Home; a member of the Kenton County Board of Health; for many years surgeon for the Chesapeake and Ohio Railroad in Kentucky; died, March 28, after an illness of three months from injuries received in an automobile accident.

Joseph P. Creveling, Albany, N. Y.; University of Michigan, Ann Arbor, 1870; aged 70; a Fellow of the American Medical Association; formerly served as president of the Albany Academy of Medicine, and surgeon for the Lehigh Valley Railroad; in 1905 and 1906 was president of the New York and New England Association of Railway Surgeons; died at his home, March 30, from cerebral hemorrhage.

William F. McAllister, San Francisco; University of Pennsylvania, Philadelphia, 1870; aged 72; formerly a member of the Medical Society of the State of California; assistant surgeon in the Veteran's Home of California; formerly a member of Napa County Board of Health; for fourteen years collector of the port and sometime commissioner of immigration in San Francisco; died at his home, March 26.

Harrison Girard Wagner, Cleveland; Cleveland College of Physicians and Surgeons, 1895; aged 52; a member of the Ohio State Medical Association; formerly visiting physician to the Cleveland City Hospital, and demonstrator of physical diagnosis in the Western Reserve University; also a pharmacist; died at the Lakeside Hospital, Cleveland, March 21, from cardiorenal disease.

Edward Payson Hammond Griswold, Niagara Falls, N. Y.; New York University, Medical Department, New York City, 1878; aged 62; a member of the Medical Society of the State of New York; formerly surgeon of the Forty-Second Separate Company of the New York National Guard; formerly health officer of the village of Niagara; died, April 2, at his home.

George Horsley Shedd, North Conway, N. H.; Bowdoin Medical School, Portland, 1879; aged 65; a Fellow of the American Medical Association; surgeon in chief of the Memorial Hospital of North Conway, and a member of the state board of medical examiners since 1897; died at his home, March 21, from angina pectoris.

William Parsons, Chicago; Rush Medical College, Chicago, 1874; aged 74; a Fellow of the American Medical Association; formerly chief surgeon for Armour and Company and Swift and Company, in the early days of the packing industry; formerly surgeon for the Chicago Junction Railroad; died at his home, April 6, from gangrene.

Elmer Davis Maddux, La Crosse, Ind.; Chicago College of Medicine and Surgery, 1910; aged 39; a Fellow of the American Medical Association; formerly a lieutenant in the Medical Reserve Corps; died in a hospital in Chicago, April 5, as the result of injuries received in an automobile accident.

Walter S. Daly, Ogdensburg, N. Y.; McGill University, Faculty of Medicine, Montreal, 1885; aged 59; a Fellow of the American Medical Association; a member of the American Laryngological, Rhinological and Otological Society; died at his home, March 18, from pneumonia.

William F. Patterson, Chapelhill, N. J.; Albany (N. Y.) Medical College, 1875; aged 67; formerly assemblyman for the third district of Monmouth County; collector of Middletown Township for a number of years; died at his home, March 5, from cerebral hemorrhage.

J. Albert Gaar, Jonesboro, La.; Memphis Hospital Medical College, 1904; aged 38; a member of the Louisiana State Medical Society; formerly resident physician to the New Orleans, Eye, Ear, Nose and Throat Hospital; died at his home, March 12, from heart disease.

Bartlett H. McMullen, Cadillac, Mich.; Detroit Medical College, 1879; aged 60; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; for two terms mayor of the city of Cadillac; died in Rochester, Minn., April 1.

Lieut. Edward Leland Mooney, Jr., M. R. C., U. S. Army, Syracuse, N. Y.; Syracuse University, College of Medicine, 1917; aged 26; a Fellow of the American Medical Association; on duty with the American expeditionary forces in France; was killed in action, March 26.

Frank Hart White, Hackensack, N. J.; University Medical College, New York City, 1883; aged 55; formerly a Fellow of the American Medical Association; a member of the Medical Society of New Jersey; died in the Hackensack Hospital, April 2, from pneumonia.

William Harold Wetmore, Oswego, N. Y.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1908; aged 33; a Fellow of the American Medical Association; died at the home of his mother, Syracuse, N. Y., March 28, from tuberculosis.

Homer S. Jeffrey, Upland, Ind.; Kentucky School of Medicine, Louisville, 1894; aged 45; formerly a member of the Indiana State Medical Association; died at the Grant County Hospital, Marion, Ind., February 14, from bronchial pneumonia.

Marion Howard Cazier, Detroit; Rush Medical College, Chicago, 1880; aged 60; formerly a Fellow of the American Medical Association; died, March 5, from the effects of a gunshot wound of the head, self-inflicted, it is believed.

Clarence A. Chaloner, Stephentown, N. Y.; Albany (N. Y.) Medical College, 1881; aged 60; a member of the Medical Society of the State of New York; supervisor of the town of Stephentown; died suddenly at his home, March 20.

Elisha J. Thurman, St. Louis; Washington University Medical School, St. Louis, 1873; aged 77; a member of the Missouri State Medical Association; a veteran of the Civil War; died at his home, March 31, from senile debility.

George Scribner Ten Eyck, Syracuse, N. Y.; Syracuse University, College of Medicine, 1908; aged 37; died in New York, March 29, following an operation for appendicitis.

Robert Murdock, Wilkes-Barre, Pa.; Hahnemann Medical College and Hospital, Philadelphia, 1872; aged 70; died suddenly at his home, March 22, from heart disease.

Alanson Tucker Schuman, Gardiner, Me.; New York Homeopathic Medical College and Hospital, 1872; aged 71; died in St. Petersburg, Fla., about March 24.

Alvin Shattuck, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1913; aged 37; died at his home, January 22, from pulmonary tuberculosis.

Henry Allen Wilson, Niagara Falls, N. Y.; University of Buffalo, 1882; aged 66; died at the Memorial Hospital, February 24, from Bright's disease.

William Houston Taylor, Little Rock, Ark.; Vanderbilt University, Medical Department, Nashville, Tenn., 1875; aged 70; died at his home, March 30.

Fannie W. Sanborn, Scranton, Pa. (licensed, Pennsylvania, 1877); aged 79; died at the home of her niece in Clark Summit, March 22.

Justus R. Conklin, Omaha; Rush Medical College, Chicago, 1859; aged 85; died at Dunedin, Fla., March 20, from cerebral hemorrhage.

Ozias Paquin, St. Louis; St. Louis College of Physicians and Surgeons, 1888; aged 53; died at the City Hospital, March 29.

Samuel Taylor Murray, Greentown, Ind. (license, Indiana, 1897); aged 77; died at his home, March 24, from heart disease.

A. Milliken, Placerville, Calif. (license, California, 1876); aged 84; died at his home, January 26, from bronchial pneumonia.

Maze A. L. Enochs, Flatcreek, Tenn.; University of Nashville, Tenn., 1872; aged 74; died at his home, March 17.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MISBRANDED NOSTRUMS

Some "Patent Medicines" for Which Fraudulent Claims Have Been Made

Ascatco.—Four dozen small and one and one-half dozen large bottles of "Ascatco" put out by the Ascatco Laboratory, New York, were seized by the government on the charge that the stuff was misbranded. The product contained 13 per cent. alcohol and some opium. It was sold under the claims, either direct or inferential, that it would cure asthma, hay-fever and catarrh, would relieve coughs and colds and would prevent hay-fever. The government charged that the claims made for the preparation were false, misleading and fraudulent. No one appeared to claim the property and the court entered judgment of condemnation and forfeiture and ordered that the article should be destroyed by the United States marshal—[*Notice of Judgment No. 4600.*]

Mexican Oil.—"Mexican Oil," manufactured by the Hausman Drug Co., Trinidad, Colo., was sold under claims that it was an effective remedy for diarrhea, dysentery, summer complaint, cholera morbus, sciatica, rheumatism, gout, bronchitis, dyspepsia and various other conditions. It was analyzed by the federal chemists who reported that it contained over 57 per cent. alcohol together with essential oils, glycerin, red pepper, emodin, menthol and a small amount of opium alkaloids. The claims made for the preparation were declared false and fraudulent. The company pleaded guilty and was fined $25 and costs.—[*Notice of Judgment No. 4616.*]

Persil.—"Persil," a nostrum of the "booze" type, was labeled as being prepared for Thompson & Co. of Boston by Arrow Distilleries Co., Peoria, Ill. It contained 40 per cent. alcohol and was claimed to contain, in addition, asparagus, parsley, celery, buchu and juniper berries. The government chemists analyzed it and declared that while it had the amount of alcohol claimed, it did not contain appreciable quantities of celery, buchu, juniper, asparagus or parsley. The government charged that the product was misbranded because it was false and fraudulently claimed that the stuff was an effective remedy for bladder and kidney trouble when in fact it was not, "but did contain ingredients which might render the article harmful when used in the treatment of diseases of the kidneys or bladder due to, or accompanied by, inflammation." The Peoria concern admitted its guilt and was fined $100 and costs.—[*Notice of Judgment No. 4635.*]

Dr. D. Kennedy's Favorite Remedy.—The Dr. David Kennedy Co. of Rondout, N. Y., shipped this product. It was found by the federal chemists to contain 18 per cent. alcohol, nearly 50 per cent. of sugar, over 4 per cent. of potassium acetate with methyl salicylate, aloes, licorice and oil of sassafras present. False and fraudulent claims were made for this stuff to the effect that it would correct the worst cases of constipation, that it was a valuable remedy for the diseases and weaknesses peculiar to females, that it was a remedy for skin diseases, rheumatism, ulceration of the kidneys and bladder, diabetes, syphilis, malaria, milk leg and various other conditions. The company pleaded guilty and was fined $50.—[*Notice of Judgment No. 4673.*]

Our Standard Remedy.—S. Donovan Swan, who did business under the name "Standard Medical Society" from Baltimore, Md., shipped a quantity of "Our Standard Remedy" to New York. The nostrum was in the form of tablets which, according to the government chemists, contained rhubarb, senna, scoparius, licorice, red pepper and some ammonia compound with indications of aloes. The label conveyed the impression that these tablets were an effective remedy for rheumatism, kidney disorders, neuralgia, dyspepsia, chills and fever, female disease, erysipelas, etc., claims that the government declared recklessly and wantonly false and fraudulent. Swan would neither affirm nor deny his guilt. He was fined $15.—[*Notice of Judgment No. 4676.*]

Dr. King's Throat and Lung Balsam.—This preparation, alleged to have been prepared by the King Medicine Co., Chicago, Ill., was shipped by the Ritchey Portrait Co. of Chicago to Georgia in violation of the Food and Drugs Act. The stuff was declared misbranded because the claims that it would relieve any ordinary cough or cold as well as any consumptive patient in the last stages of the disease were false and fraudulent. No claimant appeared for the property and the court ordered that it should be destroyed.—[*Notice of Judgment No. 4713.*]

"White Pine Expectorant" and "White Pine Balsam."—These preparations were shipped by the Allan-Pfeiffer Chemical Co., St. Louis, Mo., into the State of Illinois in violation of the Food and Drugs Act. The federal chemists reported that "White Pine Expectorant" and "White Pine Balsam" were each "essentially a sirupy solution containing a small amount of alkaloid (probably morphin), chloroform, alcohol, benzoic acid, and a large amount of plant extractives unidentified." The preparations were declared misbranded because the names indicated to the purchaser that each of the articles contained, as one of its essential ingredients, extract or tar of white pine when, in fact, neither article contained these substances. They were declared further misbranded because the labels contained false and fraudulent therapeutic claims to the effect that the products were effective remedies for consumption and all inflamed conditions of the lungs. The company pleaded guilty and was fined $40 and costs.—[*Notice of Judgment No. 4913.*]

California Tuna Tonic Tablets.—These tablets were shipped in interstate commerce by the California Good Health Co. of Louisville, Ky. When analyzed by the government chemists they were found to be coated pills containing essentially iron carbonate with a small quantity of nux vomica alkaloids (strychnin, etc.). In the circular around the bottle it was claimed that these pills were a remedy for nervous prostration, spinal affections, rheumatism, partial paralysis, insanity, consumption, leucorrhea, *la grippe* and all diseases of the nervous system. It was on a basis of these preposterous falsehoods that the government declared the pills falsely and fraudulently advertised. The company pleaded guilty and was fined $25.—[*Notice of Judgment No. 4926.*]

Alorine Antiseptic Suppository.—Henry E. Currey, who did business under the trade name Live and Let Live Drug Co. at Baker, Ore., was charged with shipping this preparation in violation of the federal Food and Drugs Act. The government chemists reported that Alorine Antiseptic Suppository was made of cacao-butter and contained quinin sulphate, boric acid and tannic acid. The circular around the bottle contained the following claims:

"A prompt and effectual Relief for Leucorrhea, . . . Tumors, Polypus, Profuse and Difficult Menstruation, Laceration of Cervix, Gonorrhea, Falling of the Womb, and all Female complaints in General. A remedy of great medicinal value; and has been used in hundreds of the most severe cases, producing instant relief, followed by a speedy cure. . . . Important. The suppositories are a positive preventative and protection from Venereal Diseases. . . ."

The government very naturally declared that these claims were false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. Currey pleaded guilty and was fined $50.—[*Notice of Judgment No. 4929.*]

St. Joseph's Quick Relief.—The Gerstle Medicine Co., Chattanooga, Tenn., shipped this stuff in interstate commerce. "St. Joseph's Quick Relief," when analyzed by the federal chemists, was found to contain 32 per cent. alcohol with Peru

balsam, camphor and red pepper. The claim was made in the trade package that the preparation was an effective and quick remedy for colic, cholera morbus, dysentery, diarrhea, neuralgia, headache, toothache, earache and various other aches. These claims the government declared recklessly false and fraudulent. The company "entered its submission to the information" and was fined $37.50 and costs.—[*Notice of Judgment No. 4939.*]

"Andrews' Wine of Life Root or Female Regulator" and "Andrews' Wine of Life Root Annex Powders."—These imposingly named products were shipped by Ernest L. Andrews, who traded as the Andrews Manufacturing Co., Bristol, Tenn. The "Female Regulator," according to the federal chemists' analysis, contained over 14 per cent. alcohol, considerable sugar and small amounts of methyl salicylate and tannin. The "Annex Powders" were composed of almost equal parts of common salt and baking soda with a small amount of washing soda. The "Female Regulator" was represented as a remedy for all diseases peculiar to the female sex, as a regulator of all derangements of the menstrual organs, as a panacea for woman's ills, as a remedy for sterility and, in fact, as a cure for all diseases from which women suffer, provided it was used in connection with the "Annex Powders." These claims were declared false and fraudulent. Andrews "entered his submission to the information" and was fined $50 and costs.—[*Notice of Judgment No. 4943.*]

Clark Stanley's Snake Oil Liniment.—Clark Stanley of Providence, R. I., sold this stuff. It was found by the federal chemists to be nothing more marvelous than a light mineral oil mixed with about 1 per cent. of fatty oil (probably beef fat), red pepper and possibly a trace of camphor and turpentine. It was falsely and fraudulently represented as a remedy for rheumatism, neuralgia, sciatica, sore throat and bunions, and as a cure for partial paralysis and effective to kill the poison from bites of animals, insects or reptiles. Stanley entered a plea of *nolo contendere* and was fined $20. —[*Notice of Judgment No. 4944.*]

Correspondence

BRITISH CORDIALITY TOWARD M. R. C. OFFICER

To the Editor:—I came over here, sailing about the 20th of July and reaching "Old Blighty" on the ———. We had a foretaste of what was coming in the following incidents. We suddenly awoke one Sunday morning to the thunder of gunfire. About 600 miles off the ——— a submarine came up about ——— behind us and commenced to shell us. Soon we were replying and putting on full steam. Ultimate score was one run for us with no hits on either side. Next day a deckhand reproved the chief gunner for his inaccuracy. He replied somewhat as follows: "You do not understand the science of gunnery, fellow. If our 6-inch shell had hit them square it would have simply put two clean holes in her sides like a punch and they could stuff them up with their coats and go on about their business. We were trying to ricochet a shot into her, by hitting the water first to slow its speed. Then the shell would have had a chance to explode inside of her and blow her up." Quite ingenious as an explanation!

On arriving at a town 24 miles behind the line, we received our first introduction to shell fire. "Good Heavens," I thought, "if this is what happens at this distance, what is the front like?" Three British colonial officers coming along just then and probably seeing the dismay on my face, laughingly dragged me into an officers' club and started a childish game of floor-croquet to make me forget it. They soon succeeded and when the bombardment was finished, went out about their business again.

Since that day the British have given me the most varied experience: four weeks in a base hospital; two weeks in a casualty clearing station; three months in the various phases of the field ambulance, at a rest station, main dressing station, advanced dressing station and as bearer officer; nearly two months as regimental medical officer and, up to the present, over two months as medical officer to a large artillery school. This position has given me an insight into sanitary problems that probably I should not have otherwise obtained.

And all the way through my associations have been with men of the most splendid type. I came over with some compunction, fearing that as a stranger, I should have a cold and unfriendly time of it. For the first two or three days this impression is confirmed. But it is only temporary. These men are coolly taking your measure or, perhaps, it is shyness. But suddenly the ice breaks and you are one of them.

I wish you could collect further expressions of appreciation for what the British are doing for us of the medical reserve and publish it. I am sure you would find everywhere the same feeling that I possess. Every one whom I have thus far met has been loud in his praise of the kindly hospitality and the keen eagerness to teach us all they possibly can, that our allies have shown us.

George S. Silliman, Lieutenant, M. R. C., U. S. Army.
B. E. F., France.

RED CROSS RELIEF WORK AT GUATEMALA

To the Editor:—The American Red Cross Relief Commission, sent by the National Red Cross to Guatemala to aid the sufferers of the earthquakes that have destroyed Guatemala City, consisting of Dr. Alvin M. Struse of the Rockefeller Foundation as medical director, Mr. J. J. O'Connor of the Red Cross as relief administrator, Mr. Edward Stuart, who recently was in charge of sanitary work for the Red Cross in Serbia, as sanitary engineer, and Mr. Mayo Tolman of West Virginia as assistant sanitary engineer have organized a large camp for the homeless on the outskirts of the city.

The United States War Department has contributed 4,000 tents for this purpose, and the American Red Cross has sent supplies and medical equipment to the value of $150,000.

Large quantities of smallpox vaccine and typhoid and paratyphoid vaccine have been sent, and the entire population of the city is being vaccinated. Preventive measures are also being taken against typhus fever and intestinal infections. A temporary water supply to replace the former system, now ruined, is about to be constructed, and the American Red Cross is shipping two chlorination plants for the disinfection of the water.

J. S. Hoagsdon, Guatemala.
Director-General, American Red Cross, Guatemala Relief.

MORE CONTRACT SURGEONS

To the Editor.—A new call for medical men for the Army has gone forth. There are many physicians who are over the age limit and yet who are able to do much work; there are others who have some slight physical defect, others who are financially unable to enlist, and finally a large class of medical teachers, who are practically the cream of the profession, and yet who are urgently needed for the training of medical students. Near many of the cantonments and camps are great medical centers or large cities, and from these a large number of physicians could be recruited for half-time medical work; they could supervise much of the work in the Army camps just as they do in civilian hospitals. Therefore would it not be wise to appoint some of these men, including specialists, as contract surgeons to give a certain proportion of their time to the Army, and to set free for more strictly military work a large number of Army doctors?

H. H. Hazen, M.D., Washington, D. C.

Syphilis and Infant Mortality.—Official statistics of public charity give a total of 458 children dead in 996 births from syphilitic women who came to be confined in the hospitals of Paris from 1880 to 1885. Proportion of infantile mortality, 40 per cent.—Alfred Fournier, *Social Danger of Syphilis*, p. 22.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 14-15. Sec., Regular Board, Dr. T. J. Stout, Brinkley; Sec., Homeopathic Board, Dr. W. B. Hughes, 900 Scott St., Little Rock; Sec., Eclectic Board, Dr. C. E. Laws, Ft. Smith.

GEORGIA: Atlanta and Augusta, May 30-June 1. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, May 6. Sec., Dr. G. A. Batten, Box 375, Honolulu.

KENTUCKY: Louisville, May 28-30. Sec., Dr. J. N. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 6-8. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

MASSACHUSETTS: Boston, May 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEVADA: Carson City, May 6. Sec., Dr. S. L. Lee, Carson City.

NEW YORK: Albany, Buffalo and Syracuse. May 21-24. Sec., Dr. W. J. Denno, Education Bldg., Albany.

Colorado January Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, Jan. 8, 1918. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 6, including 4 osteopaths, passed, and 3, including 1 osteopath, failed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists		(1915)	78.2
Ohio State University College of Medicine		(1917)	89.2
	FAILED		
University of Alabama		(1900)	*
Kansas City College of Medicine and Surgery		(1917)	71.1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Columbian University		(1899)	Illinois
Rush Medical College		(1904)	Wisconsin
College of Physicians and Surgeons, Chicago		(1905)	Illinois
		(1910)	Iowa
State University of Iowa College of Medicine		(1914)	Iowa
Hamline University		(1909)	Minnesota
Barnes Medical College		(1899)	Illinois
Marion-Sims College of Medicine		(1892)	Missouri
John A. Creighton Medical College		(1909)	Nebraska
Long Island College Hospital		(1893)	New York
Jefferson Medical College of Philadelphia		(1898)	New Mexico
Medico-Chirurgical College of Philadelphia		(1912)	Nevada

* No grade given.

District of Columbia January Examination

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, Jan. 8-10, 1918. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 7 passed and 1 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1917)	76.2, 83.3
Howard University		(1916)	75.7, 81.3
Chicago College of Medicine and Surgery		(1915)	82.4
Harvard University		(1916)	81.2
Michigan College of Medicine and Surgery		(1904)	76
	FAILED		
Tufts College Medical School		(1894)	70

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Howard University		(1914)	W. Virginia

Michigan Reciprocity Report

Dr. Beverly D. Harison, secretary of the Michigan Board of Registration in Medicine, reports that 5 candidates were licensed through reciprocity from Jan. 8 to 23, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1912)	Illinois
Northwestern University		(1906)	Illinois
University of Illinois		(1916)	Illinois
Vanderbilt University		(1917)	Tennessee
Marquette University		(1916)	Wisconsin

Minnesota January Examination

Dr. Thomas McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, Jan. 2-4, 1918. The examination covered 15 subjects and included 80 written questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Nine candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University		(1917)	88
Rush Medical College		(1917)	85
Bowdoin Medical School		(1917)	78
University of Nebraska		(1917)	83

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1901) Illinois;	(1908)	N. Dakota
Rush Medical College	(1911)	(1913)	Illinois
University of Michigan Medical School		(1912)	Michigan
John A. Creighton Medical College		(1916)	Nebraska
University of Nebraska		(1906)	Nebraska
University of Pennsylvania		(1911)	N. Carolina
Milwaukee Medical College		(1910)	Wisconsin

Oklahoma January Examination

Dr. J. J. Williams, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, Jan. 8-9, 1918. The examination covered 13 subjects and included 90 questions. An average of 70 per cent. was required to pass. Three candidates were examined, including 1 osteopath, all of whom passed. Twenty-four candidates, including 5 osteopaths, were licensed through reciprocity. Eight candidates, including 1 osteopath, were granted reregistration licenses. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Memphis Hospital Medical College		(1908)	75
University of West Tennessee		(1916)	76

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago Physio-Medical Institute		(1890)	Missouri
College of Phys. and Surg., Chicago		(1890)	Arkansas
College of Physicians and Surgeons, Keokuk		(1882)	Iowa
University of Kansas		(1906)	Kansas
University of Louisville		(1911)	Kentucky
Tulane University	(1893) (1902)	(1909)	Texas
College of Phys. and Surg., Baltimore		(1905)	W. Virginia
St. Louis College of Physicians and Surgeons		(1912)	Tennessee
University Medical College of K. C.		(1908)	Kansas
Washington University		(1915)	Missouri
Lincoln Medical College		(1898)	Nebraska
Syracuse University		(1875)	Kansas
Cleveland College of Physicians and Surgeons		(1903)	Ohio
Memphis Hospital Medical College		(1909)	Tennessee
University of Nashville		(1903)	Arkansas
Fort Worth School of Medicine		(1901)	Texas
McGill University		(1887)	Kansas

Wisconsin January Examination

Dr. J. M. Dodd, secretary of the Wisconsin State Board of Medical Examiners, reports the practical and written examination held at Madison, Jan. 10, 1918. The examination covered 24 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 13 candidates examined, 12 passed and 1 failed. Four candidates were licensed through reciprocity, and 1 candidate was granted a reregistration license. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1915)	89.5
Chicago Coll. of Med. and Surg.	(1912) *; (1914) 85;	(1915)	80
Rush Medical College		(1916)	92.5
University of Illinois		(1916)	82
Harvard University		(1917)	86
New York Homeo. Med. Coll. and Flower Hosp.		(1917)	85.5
University of the City of New York		(1885)	78
Vanderbilt University		(1916)	88.5
Marquette University		(1917)	87
University of Christiania		(1916)	75
	FAILED		
Chicago College of Medicine and Surgery		(1915)	*

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons		(1899)	Georgia
Bennett Medical College		(1914)	S. Dakota
St. Louis University		(1915)	Iowa
National University, Athens		(1909)	Illinois

* No grade given.

Book Notices

A Clinical Manual of Mental Diseases. By Francis X. Dercum, A.M., M.D., Ph.D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia. Second edition. Cloth. Price, $3.50 net. Pp. 497. Philadelphia: W. B. Saunders Company, 1917.

This edition does not materially differ from the first, although it has been revised and to some extent enlarged and altered. It remains a good descriptive textbook. The author's strong points are delineation of clinical types and therapeutic procedures. His weak points are psychology (normal and abnormal) and, consequently, classification. The book aims to be a practical guide for students and practitioners, and it is; but with a somewhat loose or superficial psychology, and a classification here and there a bit careless, it is a guide that might occasionally lead one astray. To write about the insanity of the special fears, the insanity of indecision, and the insanity of deficient inhibition might easily mislead the inexperienced, even though the description of the patients is good, for these are not insanities at all. On page 195 the author makes the common though radical error of confusing phobia with impulse. In the chapter on psychologic interpretation of the symptoms he gives an outline of the principles and technic of freudian psychanalysis which is as fair as could be expected from an avowed opponent. It cannot be assumed to be such as would satisfy freudians. Obviously, the chapter on treatment is the result of experience and not of theory; consequently, it is good. Such details as methods of feeding and alternation of nurses will be of immediate and practical value to the practitioner. In conclusion, the reviewer is impelled to remark that to criticize a textbook on psychiatry is superlatively easy; to write a good one, exceedingly difficult.

War Nursing. A Text-Book for the Auxiliary Nurse. By Minnie Goodnow, R. N., War Nurse in France. Cloth. Price, $1.50 net. Pp. 172, with 120 illustrations. Philadelphia: W. B. Saunders Company, 1917.

This book is intended to supply the demand for a work on nursing as applied to war. While nursing and the fundamental principles governing the work are the same in civil as well as in base hospitals at the front in a war, at the same time there is a decided variance not only in the radically different conditions in surroundings, but also in that all the patients are soldiers. This fact is emphasized in the first sentence of the book: the relationship between the sick man and his nurse is one that does not exist in ordinary life. Of course there is a difference in the hospital itself, and this difference is described. The nurse, like every one else, is subject to military rules and regulations, and she must accept conditions in this regard that she might not be willing to accept in private life. She must obey without protest or attempt at evasion. "She must be a good soldier, uncomplaining, unquestionably obedient." But she has her satisfaction in that "patients are subject to the orders of the nurse, acting under the medical officers or charge nurse." While intended specifically for war nursing, this book contains information and suggestions that will be found of very practical value to all nurses, for, as we have stated, nursing is the same to a great extent no matter whether in a war or in a civil hospital. The book is full of good, common sense, of practical instruction and of sound advice. It is also well illustrated.

Oral Roentgenology. A Roentgen Study of the Anatomy and Pathology of the Oral Cavity. By Kurt H. Thoma, D.M.D., Lecturer on Oral Histology and Pathology, Harvard University Dental School. Cloth. Price, $4 net. Pp. 213, with 311 illustrations. Boston: Ritter & Co., 1917.

This book is a roentgenographic atlas consisting of 311 halftone reproductions of roentgenograms of the teeth and maxillary bones, and thirty-five pages of text. It is divided into four parts: (1) studies of the normal tissues; (2) studies of pathologic oral conditions; (3) use of roentgenograms as an aid in treatment, and (4) examination of the oral tissues in somatic disease. The first part illustrates the development of both the temporary and the permanent teeth, and the structure of the several regions of the maxillae and mandible. In the second part there are forty-three illustrations of unerupted and misplaced teeth, mostly lower third molars and upper cuspids; forty-one in the group illustrating alveolar abscess, twenty-seven in the group illustrating chronic pericementitis, three of fractures of the mandible, two of odontoma, and eleven of various types of cysts. The third part is devoted almost entirely to root canal fillings, and a number of groups showing alveolar abscesses, the condition immediately after amputation of root apexes, and at subsequent examinations. Brief case histories accompany many of the illustrations and add to their interest. Most of the illustrations appear to be unusually good reproductions of the roentgenograms. The book would be of greater value if both the text and the case histories were extended. Four new terms are used: radiability, the property of an object to transmit the ray; radioparent, offering no barrier to the ray; radiolucent, offering slight resistance, and radiopaque, impervious to the ray.

Soins oculaires à l'usage des infirmières. Par H. Coppez, Agrégé à l'Université libre de Bruxelles, et A. Van Lint, Chef de Service à la Policlinique de Bruxelles. Paper. Pp. 186, with 114 illustrations. Paris: Masson & Cie, 1916.

This small French volume, which might be compared to the various compends published in the English language, is profusely illustrated, many of the illustrations admirably portraying the subject matter. The book is divided into four parts. The first part describes the anatomy and methods of examination of the eye. The second part is devoted to therapeutics in general, explaining the use of bandages, thermotherapy, electrotherapy, massage, cupping, etc. The third part deals with surgical technic, preparation of the patient, the operating room, care of instruments, and postoperative treatment. The fourth part contains brief descriptions of special conditions, tells how to handle children and emergency cases, gives directions for instructing the patient how to insert and remove an artificial eye, and finally enumerates a list of the medicines and instruments most commonly used. The book is a multum in parvo, and will serve as a handy reference book to oculists engaged in dispensary practice.

Medicolegal

Liability for Cataract Where No Operation Is Had

(Joliet Motor Co. vs. Industrial Board et al. (Ill.), 117 N. E. R. 423)

The Supreme Court of Illinois reverses a judgment that confirmed an order of the industrial board sustaining an award to one Goodwin of $9 per week for 100 weeks for complete loss of sight of his left eye, to be paid by the Joliet Motor Company, the board taking the position that it had no power to force an operation for the removal of a cataract. The court says that Goodwin, while in the employ of the motor company, was injured, May 2, 1914, by a particle of steel entering his left eye; that a cataract gradually formed on the eye; and that Aug. 18, 1915, fifteen months after the accident, was fixed as the time when there was an entire loss of sight. The evidence was that an operation for the removal of a cataract is neither serious nor dangerous to an ordinary person in good health, and a very large majority of such operations are successful. There was a good probability of recovering normal vision for ordinary purposes by removal of the cataract, and the industrial board found that Goodwin ought to have the operation performed. The fact that the board had no power to force him to submit to an operation did not determine the question involved, which was whether the total loss of sight was attributable to the accident, which caused the slow growth of a cataract, or to an unreasonable refusal of Goodwin to have the cataract, which caused the loss of vision, removed. The statutory provision for reducing or suspending compensation if an employee shall persist in insanitary or injurious practices, which tend either to imperil or to retard his recovery, or shall refuse to submit to such medical or surgical treatment as shall be reasonably essential

to his recovery, does not apply to an original application for compensation on account of an entire loss of the sight of an eye when the question to be decided is whether that loss is due to an unreasonable refusal to remove the cause. The evidence was that the proposed operation would not be attended with any risk, and appeared to be such as any reasonable man would take advantage of, if he had no one against whom he could claim compensation, and the board found that it was the duty of Goodwin to have the operation performed. Under that finding the refusal of Goodwin was unreasonable, and the continued loss of sight should be attributed to such refusal, and not to the accident. The order of the board was not consistent with its finding. If the operation for the loss of sight should be had, and prove unsuccessful, the Joilet Motor Company would be liable for the loss of sight, as well as the surgical and hospital services necessary for the operation and the treatment already received; but, if successful, its liability would be for the temporary loss of time and treatments had, and surgical and hospital expenses necessary for the operation, and if the operation should not be a substantial success there would be a different basis of compensation from a case of total loss of eyesight. It was urged that no claim for compensation was made on the Joliet Motor Company until after the expiration of more than six months after the accident; but the foreman knew of the accident when it occurred, and afterward the company's manager offered Goodwin $200 in settlement of the injury. Goodwin told the secretary or treasurer that he was going to look to the company to reimburse him, and the manager said that was all right, and advised him to take care of the eye. The notice was sufficient.

Wife's Separate Estate Obligated to Pay for Medical Services

(Charron v. Day (Mass.), 117 N. E. R. 347)

The Supreme Judicial Court of Massachusetts overrules exceptions to a finding for the plaintiff in this action by a physician against an executor to recover for services rendered to the defendant's testatrix during a period of years prior to her decease. The court says that the testatrix was then a married woman living with her husband, who worked for the support of the family and furnished her the money with which she paid the household bills, including certain cash payments to the plaintiff.

The law implies an obligation on the part of the husband to pay for medical attendance rendered to his wife. But under present statutes the wife also may incur an obligation to pay for such attendance. Massachusetts Statutes of 1910, Chapter 576, whereby a married woman may be held liable under stated conditions jointly with her husband for debts for necessaries not exceeding $100 in value, have no application to the facts of the case at bar. But a married woman may bind her separate estate to pay for necessaries furnished to her by an express promise or by conduct and words from which an intentional obligation to that effect may be inferred. The auditor's findings bearing on this point were that:

"No express agreement was made by Mrs. Day to pay Dr. Charron for his services. . . . Mrs. Day often told Dr. Charron that there would be property enough left by her after her death to pay him and that he would get his pay. . . . All payments made on account of this bill were cash with the exception of one item of credit, which was one load of hay, Dec. 5, 1910, $10. Mrs. Day owned the land from which this hay was cut and knew of the transaction. . . . His charges were made against Mrs. ——— Day and whenever payments were made on account of his bill Mrs. Day made them or they were made by her direction," presumably, however, out of money furnished by her husband. "I do not find that . . . she knew the amount of Dr. Charron's charges against her, nor that she knew that Dr. Charron was charging her for services to other members of the family, nor do I find that there was ever any promise to pay on her part any bill of Dr. Charron during her lifetime, but that she told the doctor that, if you do not get your money now, you will some time after my death. . . ."

The finding was against the plaintiff so far as services rendered to other members of the family were concerned, and no question arose on that point.

The request of the defendant for a ruling that the plaintiff could not recover was denied rightly in view of these findings of fact. The testatrix knew the attendance was rendered to her and apparently knew that the charges were made against her. One credit on the account was made seemingly out of her property with her knowledge and consent. The finding that there was no "express agreement" on her part to pay must be considered in connection with the further finding that she said to the doctor that she would leave property enough to pay the bill, and that he would get his pay after her death. The fair implication of these words might reasonably be found to be that she intended him to understand that her estate should be bound to pay his charges, if they were not paid before her decease. If this was so, then it would be equivalent to a direct promise to pay the debt after her death. A contract to pay money after one's own death is valid.

Cross-Examination Allowed as to Previous Ailments

(Lampel v. Goldstein et al. (N. Y.), 167 N. Y. Supp. 576)

The Supreme Court of New York, Appellate Term, First Department, says that, in this action to recover damages for personal injuries, the plaintiff's physician testified that he treated her for about two weeks after the accident for contusions and lacerations, and for a hysterical and nervous condition. He further testified, on cross-examination, that he had treated her professionally before the accident and also treated her after the expiration of the two weeks. The trial court, however, refused to allow the defendants to question the physician abou· the nature and symptoms of the ailments for which he treated the plaintiff shortly before the accident and shortly after the two weeks following the accident, apparently basing its ruling on the question of privilege. This was clearly error, as, the physician having been called as a witness by the plaintiff, the defendants had the right to cross-examine him about the other ailments from which the plaintiff had suffered before the accident, and to bring out, if possible, that the hysterical and nervous condition treated by him after the accident was due to the previous ailments.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, CHICAGO, JUNE 10-14.

Alpha Omega Alpha Society, Chicago, June 10.
American Climatological and Clin. Assn., Boston, June 5-6.
American Dermatological Association, Philadelphia, May 23-25.
American Gastro-Enterological Association, Atlantic City, May 6-7.
American Gynecological Society, Philadelphia, May 16-18.
American Laryngological Association, Atlantic City, May 27-29.
Amer. Laryn., Rhin. and Otol. Soc., Atlantic City, May 29-30.
American Medico-Psychological Association, Chicago, June 4-7.
American Neurological Association, Atlantic City, May 9-10.
American Orthopedic Association, Washington, D. C., April 22-23.
American Otological Society, Atlantic City, May 28-29.
American Pediatric Society, Lenox, Mass., May 27-29.
American Proctologic Society, Chicago, June 10-11.
American Surgical Association, Cincinnati, June 6-8.
American Therapeutic Society, Richmond, Va., June 7-8.
Arizona Medical Association, Phoenix, April 24-25.
Arkansas Medical Society, Jonesboro, May 7-9.
Association of American Physicians, Atlantic City, May 7-8.
Conference of State & Prov. Bds. of N. Amer., Washington, June 5-6.
Connecticut State Medical Society, Hartford, May 15-16.
Illinois State Medical Society, Springfield, May 21-23.
Iowa State Medical Society, Fort Dodge, May 8-10.
Kansas Medical Society, Kansas City, May 1-3.
Maryland Medical and Chir. Faculty of Baltimore, April 23-25.
Massachusetts Medical Society, Boston, June 18-19.
Michigan State Medical Society, Battle Creek, May 7-9.
Mississippi State Medical Association, Jackson, May 14-15.
Missouri State Medical Association, Jefferson City, May 6-8.
Nat. Assn. for the Study and Prev. of Tuberculosis, Boston, June 6-8.
Nebraska State Medical Association, Omaha, May 7-9.
New Hampshire Medical Society, Concord, May 15-16.
New Jersey Medical Society, Spring Lake, June 25-26.
New York State Medical Society, Albany, May 21-24.
North Dakota State Medical Association, Fargo, June 19-20.
Oklahoma State Medical Association, Tulsa, May 14-16.
Oregon State Medical Association, Portland, June 27-29.
Rhode Island Medical Society, Providence, June 6.
South Dakota State Medical Society, Mitchell, May 21-23.
Texas State Medical Association, San Antonio, May 14-16.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

March, 1918, **23**, No. 2

1 Formation and Structure of Zona Pellucida in Ovarian Eggs of Turtles. A. Thing, Cleveland.—p. 237.
2 Fontanella Metopica and Its Remnants in an Adult Skull. A. H. Schultz, Washington, D. C.—p. 259.
3 Isolation, Shape, Size and Number of Lobules of Pig's Liver. F. P. Johnson, St. Louis.—p. 273.
4 Brachial Plexus of Nerves in Man, Variations in Its Formation and Branches. A. T. Kerr, Ithaca, N. Y.—p. 285.
5 Age of Human Embryos. F. P. Mall, Baltimore.—p. 397.
6 Determination of Size of Heart by Means of Roentgen Rays. C. R. Bardeen, Madison, Wis.—p. 423.

American Journal of Ophthalmology, Chicago

March, 1918, **1**, No. 3

7 Satisfactory Operation for Muscle Shortening or Advancement. W. B. Lancaster, Boston.—p. 161.
8 Secondary Optic Atrophy Due to Gassing. W. E. Kershner.—p. 168.
9 Latent Nystagmus. M. W. Jacobs, St. Louis.—p. 171.
10 Congenital Paralysis of External Rectus Muscle. W. H. Crisp, Denver.—p. 172.
11 Operation for Extraction of Lenses Fully Dislocated into Vitreous. H. S. Paine, Glens Falls, N. Y.—p. 177.
12 Theory as to Etiology of Glaucoma. R. S. Lamb, Washington, D. C.—p. 183.
13 *The Eye in Dementia Praecox. F. F. Teal, Lincoln, Neb.—p. 185.
14 Artificial Daylight Illumination for Perimetric Study and General Office Use. L. C. Peter, Philadelphia.—p. 189.

13. **Eye in Dementia Praecox.**—Teal's observations include an examination of fifty-three cases of dementia praecox and thirteen cases of manic-depressive insanity. The most constant feature of the change in retinal appearance was the dilated and sometimes tortuous condition of the veins, together with the contracted arteries. The disk at times was of a normal appearance, while at others it would range from a hyperemic condition to a quite well marked papillitis, and occasionally the inner side was congested, and the temporal side pale. The cupping was normal in 40 per cent., diminished in 45 per cent. and filled in 15 per cent. The fields were examined in 15 selected cases of dementia praecox in the more recent stages of the disease. The charts showed in the majority of instances the concentrically contracted field for form and color, with frequent interlacing of the color fields. The contraction ranges from slightly less than normal to 30 degrees, which is practically the same result shown in the investigation of the others mentioned. The manic depressives showed the cup filled with deep congestion, in 35 per cent. and partially filled in the remainder, even to slight elevation.

American Journal of Public Health, Boston

March, 1918, **8**, No. 3

15 Production and Conservation of Food Supplies. P. H. Bryce, Ottawa.—p. 185.
16 Influence of Heat on Growth Promoting Properties of Food. E. V. McCollum, Baltimore.—p. 191.
17 Present Status of Preservation of Food by Canning, and Possibilities of Increase. H. Burden, Washington, D. C.—p. 195.
18 Municipal Food Departments in Modern War. O. Salthe, New York.—p. 197.
19 Fish Canning Industry. C. M. Hilliard, Boston.—p. 202.
20 Fruit and Vegetable Dehydration from Technical Standpoint. C. V. Ekroth, New York.—p. 205.
21 Retail Distribution and Marketing. M. Talbot, Chicago.—p. 208.
22 Problems of Canning Operations. W. D. Bigelow, Washington, D. C.—p. 212.
23 Bacteriology of Swelled Canned Sardines. W. Sadler, St. Andrews, N. S.—p. 216.
24 Cold Storage; Its Capabilities and How to Best Utilize and Extend Them. F. A. Horne, New York.—p. 221.
25 Milk Standards. C. E. North, New York.—p. 228.
26 Uniform Statistics of Mental Diseases. H. M. Pollock.—p. 229.

Arkansas Medical Society Journal, Little Rock

March, 1918, **14**, No. 10

27 Colon, Reservoir of Infection. M. G. Thompson, Hot Springs.—p. 196.

Boston Medical and Surgical Journal

March 28, 1918, **178**, No. 13

28 Place of Home, Dispensary, Sanatorium or Hospital in Treatment of Tuberculosis (Value of Diet, Rest, Fresh Air, etc.) E. O. Otis, Boston.—p. 417.
29 Some Modern Medical Problems. T. Leary, Boston.—p. 422.
30 Revised Ideas Concerning Foot Defects and Orthopedic Footwear. H. W. Marshall, Boston.—p. 428.
31 Dispensaries in Massachusetts, Particularly in Boston. M. M. Davis, Jr., Boston.—p. 432.
32 *Possible Nature of Measles. L. D. Bristol, Augusta, Me.—p. 437.

32. **Nature of Measles.**—Bristol's suggestion that measles is nothing more than the manifestation of a pneumococcic anaphylaxis is worthy of consideration, as is also the suggestion that scarlet fever is dependent on a streptococcic anaphylaxis.

Journal of Biological Chemistry, Baltimore

March, 1918, **33**, No. 3

33 Foam Inhibitor in Van Slyke Amino Nitrogen Method. H. H. Mitchell and H. C. Eckstein, Urbana, Ill.—p. 373.
34 *Blood Fat and Lipoids of Dog Before and After Production of Experimental Anemia. H. Dubin, Philadelphia.—p. 377.
35 *Animal Calorimetry. Influence of Mechanical Work on Protein Metabolism During Height of Meat Digestion in Dog. H. V. Atkinson, New York.—p. 379.
36 Direct Determination of Urea and Ammonia in Placenta Tissue. F. S. Hammett, Boston.—p. 381.
37 Comparison of Glucose and Cholesterol Content of Blood. F. H. McCrudden and C. S. Sargent, Boston.—p. 387.
38 *Analysis of Milk Secreted by Suckling Doe Kid. R. L. Hill, College Park, Md.—p. 391.
39 Catalase Content of Ascaris Serum, with Suggestion as to Its Rôle in Protecting Parasites Against Digestive Enzymes of Their Hosts. T. B. Magath, Chicago.—p. 395.
40 *Fatty Acids in Human Blood in Normal and Pathologic Conditions. F. A. Csonka, Pittsburgh.—p. 401.
41 Biologic Analysis of Pellagra Producing Diets. Nature of Dietary Deficiencies of Diet Derived from Peas, Wheat Flour, and Cottonseed Oil. E. V. McCollum, N. Simmonds and H. T. Parsons, Baltimore.—p. 411.
42 Structure of Yeast Nucleic Acid. Ammonia Hydrolysis. P. A. Levene, New York.—p. 425.
43 Detailed Method for Preparation of Histidin. H. M. Jones, Chicago.—p. 429.
44 Growth of Chickens in Confinement. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 433.
45 Effects of Electrolytes on Gelatin and Their Biologic Significance. Effect of Salts on Precipitation of Acid and Alkaline Gelatin by Alcohol. Antagonism. W. O. Fenn, Cambridge, Mass.—p. 439.
46 *Effect of Potassium Bromate on Enzyme Action. I. S. Falk and C.-E. A. Winslow, New Haven, Conn.—p. 453.
47 Cell Penetration by Acids. Penetration of Phosphoric Acid. W. J. Crozier.—p. 463.
48 *Studies of Experimental Scurvy. Influence of Grains, Other Than Oats, and Specific Carbohydrates on Development of Scurvy. W. Pitz, Madison, Wis.—p. 471.
49 Chemical Study of Food Fishes. Analysis of Twenty Common Food Fishes with Especial Reference to Seasonal Variation in Composition. E. D. Clark and L. H. Almy, Philadelphia.—p. 483.
50 Method for Preparation of Taurin in Large Quantities. C. L. A. Schmidt and T. Watson, Berkeley, Calif.—p. 499.
51 Elimination of Taurin Administered to Man. C. L. A. Schmidt, E. von Adelung and T. Watson, Berkeley, Calif.—p. 501.
52 Synthesis and Oxidation of Tertiary Hydrocarbons. P. A. Levene and L. H. Cretcher, Jr., New York.—p. 505.
53 Copper-Phosphate Mixtures as Sugar Reagents. Qualitative Test and Quantitative Titration Method for Sugar in Urine. O. Folin and W. S. McEllroy, Boston.—p. 513.
54 Determination of Lactose in Milk. O. Folin and W. Denis, Boston.—p. 521.
55 Nitrogen Content of Bacterial Cells. H. C. Bradley and M. S. Nichols, Madison, Wis.—p. 525.
56 Ionization of Proteins and Antagonistic Salt Action. J. Loeb, New York.—p. 531.
57 Study of Nonprotein Nitrogen of Wheat Flour. M. J. Blish, Bozeman, Mont.—p. 551.

34. **Fat and Lipoids of Dog's Blood Before and After Experimental Anemia.**—The results obtained by Dubin are in accord with the findings of Bloor in pernicious anemia associated with carcinoma of the stomach.

35. **Animal Calorimetry.**—It is clear from Atkinson's work that mechanical work has no influence on the hourly rate of absorption of protein or on the intensity of the hourly metabolism of protein in a dog which has been given meat in large quantity.

38. **Analysis of Doe's Milk.**—A 4 months old virgin doe kid spontaneously commenced to secrete milk having all the

characteristics, properties, and chemical composition of the milk secreted by its mother and other goats under observation. At no time, from the earliest secretion of milk to the present time, has there been any colostrum secreted. Hill thinks that this would indicate that the secretion of colostrum is associated with and possibly is produced by the cessation of pregnancy and may not occur in lactation not associated with pregnancy.

40. **Fatty Acids in Human Blood.**—Csonka states that unsaturated fatty acids are a product of normal metabolism, being present in normal human blood, in which they form 48.0 per cent. of the total fatty acids. Judged by their iodin absorption power there are, in addition to oleic acid, other unsaturated fatty acids both higher and lower than oleic, although in small amounts. The iodin numbers of the unsaturated fatty acids in pathologic conditions are generally higher than in normal individuals, especially in cases with low hemoglobin values. As such acids exist in normal human blood as well as in pathologic conditions without anemia, Csonka says, it is necessary to look further for the primary cause of toxic hemolysis.

46. **Effect of Potassium Bromate on Enzyme Action.**—The authors found that potassium bromate appears to exert consistently favorable influence on the digestion of casein by trypsin in vitro in the dilutions studied, the action being most marked at bromate concentrations of 1 part in 100,000 to 1 part in 200,000. Potassium bromate in concentrations of 1 part or more in 10,000 appears to exert a slight inhibitive influence on the digestion of casein by pancreatin, while in higher dilutions (1 part in 200,000 or 1 part in 250,000) it appears to exert a stimulating action.

48. **Studies of Experimental Scurvy.**—Pitz succeeded in producing scurvy in the guinea-pig by feeding a ration of unmilled grains and milk.

Journal of Urology, Baltimore

February, 1918, **2**, No. 1

58 *Chemical Blood Observations in Urologic Cases. J. B. Squier and and V. C. Myers, New York.—p. 1.
59 Operative Technic of Lithotomy in Eighteenth Century. C. G. Cumston, Geneva, Switzerland.—p. 23.
60 *Employment of High Frequency Current for Extraction of Calculi Incarcerated in Lower End of Ureter. H. H. Young, Baltimore. —p. 35.
61 Device Facilitating Introduction of Cystoscope in Certain Difficult Cases. W. A. Frontz, Baltimore.—p. 39.
62 *Absorption of Drugs and Poisons from Bladder and Urethra. Absorption of Apomorphin and Morphin. D. I. Macht, Baltimore.—p. 43.

58. **Chemical Blood Observations in Urologic Cases.**—Observations are reported by Squier and Myers on seventy-five cases divided as follows: Fifty-eight cases with prostatic obstruction, seven nephrectomy cases, one double decapsulation in a case of bichlorid poisoning and nine miscellaneous urologic cases. Data have been collected on these cases for the past three years. Emphasis is placed particularly on the usefulness of the urea nitrogen estimation. Since an appreciable retention of creatinin does not occur until the impairment in renal function is advanced, it would appear to be of decidedly less value as a preoperative test than the urea, although a high creatinin, when found, would indicate the inadvisability of operating. In the prostate series, seven cases showing 3.5 mg. or more creatinin were all among the fatal ones. There were several cases in which the determination of the blood sugar data was of special diagnostic significance (diabetes). Excepting these cases, a few others showed blood sugars appreciably above normal (those above 0.16 per cent.), in which glycosuria was not noted. Some of these are associated with the retention phenomenon of advanced nephritis, but a few would appear to be mild cases of diabetes in which the condition had not been disclosed by the urine examination. The authors state that cases showing urea nitrogen figures under 20 mg. per 100 c.c. of blood may be regarded as good operative risks so far as the kidneys are concerned. When the urea nitrogen figures are found between 20 and 30 mg., and especially between 25 and 30, the patient should be operated on with considerable caution and best after a period of preliminary treatment directed to relieve the nitrogen retention. The gas-oxygen method is the anesthesia of choice. The data recorded indicate that with urea nitrogen figures over 30 the operative prognosis is bad.

60. **High Frequency Current.**—Young says that the employment of the high frequency current in cases of calculus, incarcerated in the intramural and intravesical portions of the ureter, is successful in enlarging the orifice sufficient to permit its passage. Furthermore this operation is simple, can be carried out without anesthesia, and does not produce more than slight hemorrhage.

62. **Absorption of Apomorphin and Morphin.**—Macht found that the absorptive power of the posterior urethra is distinctly greater than that of the anterior.

Medical Record, New York

March 30, 1918, **93**, No. 13

63 Problem of Tuberculosis in Modern Armies at War; Its Study and Solution in Italian Army. A. M. Caccini, New York.—p. 529.
64 Acute Laryngitis with Edema of Glottis; Report of Three Cases Requiring Intubation; Recovery. L. Fischer, New York.—p. 539.
65 Differential Diagnosis and Treatment of Folliculitis and Conjunctivitis. W. M. D'A. Carhart, New York.—p. 540.
66 Use of Hormone Equations in Acute Infectious Diseases. C. R. Carpenter, East San Diego, Calif.—p. 543.
67 Chronic Urethral Discharge. P. S. Pelouze, Philadelphia.—p. 546.
68 Autosensitized Foreign Protein; Claim of Superiority for it as Subcutaneous or Intravenous Injection. W. L. Secor, Kerrville-on-the-Guadalupe, Texas.—p. 548.

Military Surgeon, Washington, D. C.

March, 1918, **42**, No. 3

69 Malingering in U. S. Troops, Home Forces, 1917.—p. 261. To be continued.
70 *Injuries of Head. H. Gage.—p. 276.
71 *Case for More Efficient Treatment of Light Casualties in Military Hospitals. R. I. Lee.—p. 283.
72 *Ankylostoma Duodenale in U. S. Army. E. McD. Trabue, R. A. Kielty and C. W. Havercampe.—p. 287.
73 Austrian Reserve Hospital. G. J. Korby.—p. 298.
74 Gunshot Fractures of Long Bones of Extremities. H. M. Frost. —p. 306.
75 *Reaction Following Use of Antipneumococcic Serum. A. Friedlander and S. C. Runnels.—p. 320.
76 Lessons Derived from Training of Medical Officers. B. F. Duckwall.—p. 326.

70. **Injuries of the Head.**—The rules for operating which Gage has laid down for himself are as follows: In all cases of localized pressure, as determined by localized symptoms of paralysis or cortical irritation, operate. In every suspicious border line case, determine condition of bone over suspected area by exploratory incision of scalp. In every depressed fracture simple or compound, with or without symptoms, elevate. In all depressed or perforating wounds remove all sharp spicules of bone that can be felt loose or detached in the wound; leave the edges of the bony opening and the under surface of the skull around it clean and smooth. Remove foreign bodies always if they are likely to cause infection, or if they are giving rise to symptoms—in other cases, for instance, in case of small bullets, remove when possible without too much traumatism to the brain, remembering always that the possibility of such becoming harmlessly encysted, is better than the certainty of destroying important cerebral centers.

England, France and Germany agree that operation should be done as soon as possible after the receipt of injury, but they are equally insistent on getting the wounded back at least to the evacuation hospital if it can be done. After operation they should not be moved again until convalescent, so that if they are primarily evacuated to a field ambulance or field hospital nothing should be attempted there except the shaving, scrubbing, trimming and dressing. They should then be immediately evacuated to a more quiet and permanent hospital where operation should be done at once if indicated. How extensive should the first operation be? Here the English and German are inclined to be rather conservative, while the French are much more radical—all agree that the first thing to be done is to trim off any crushed and infected tissue, so that the danger of sepsis, which is rendered much

greater than in civil life by the nature of the wounds and the delay in transportation, may be minimized. If received at an evacuation hospital the French advocate doing all that is necessary at once—even to removal of foreign bodies. This latter is accomplished after careful roentgen ray localization by the use of the little finger and a gallstone scoop, the wound is closed without extradural drainage and dural defects closed by pieces of fascia or with rubber tissue. Gage prefers the latter.

The English and Germans lay the same stress on thorough removal of devitalized and infected tissue and on closure of wound with only extradural drainage, but are much less inclined to remove deep seated foreign bodies unless indications, that is, symptoms, are very clear. Sergeant and Holmes found the late results of those wounded, evacuated to hospitals, in England so good that they recommended only such surgical interference at the front as may be called for to establish necessary drainage and the healing of the wound. An interesting work, in the way of reconstruction, has been done by the French in filling up defects in the skull with pieces of cartilage taken from the cartilages of the ribs; a shaving 1/16 to 1/8 inch thick taken from the rib cartilage, its full width and length if possible, is placed in the defect.

71. **Treatment of Light Casualties in Military Hospitals.**—The purpose of Lee's communication is to try to point out the advantages of a first class department devoted to the diagnosis and treatment of these so-called light cases. A proper solution would be to have what is known as an outpatient department, especially designed and adequately officered for the treatment of these cases. In contrast to civilian hospitals, one frequently sees, in the same wards, patients who are critically ill or seriously wounded and those who have little the matter with them, and who in civil life would be treated in an outpatient or dispensary department. It would seem wise to recognize this fact as has been done in many of the large civil hospitals, and to have a somewhat distinct, but at the same time closely related, outpatient or dispensary department for ambulatory patients. By this distinction it would be possible to concentrate special ward attention on the very sick and on the seriously wounded, and likewise, by the furnishing of adequate facilities, to care effectively for ambulatory patients, who are of so great value from a military and economic viewpoint. The ambulatory patients could be adequately housed in barracks with a minimum requirement for nurses and orderlies. This would mean the establishment of an outpatient or dispensary department in connection with every hospital.

The outpatient department should be commodious, built of wood, with adequate light and heat if necessary. It should have adequate facilities for the dressing of all wounds. There should be a room for minor operations, such as the opening of boils, small abscesses, and the removal of subcutaneous foreign bodies. This, in itself, would prevent the overcrowding of the main operating room, which is now inevitable in times of pressure. There should be opportunity for complete physical examinations. The various specialists should have compartments or rooms for their use. Experience has indicated that the usual roentgen ray equipment in the base hospital is hardly adequate to take care of both the severe cases and the light cases. Yet, in connection with the light cases, the determination of the presence or absence of a fracture or foreign body is often the deciding point as to the disposal of the case. It would be well to consider the establishment of a roentgen-ray plant, of relatively small capacity, in direct connection with the outpatient department. This would add greatly to the efficiency of the organization.

72. **Uncinaria in Army.**—Of 6,159 examinations of feces for uncinaria eggs made by the authors, 1,504, or 24.4 per cent., were found positive. The work was accomplished in less than a month by a detail of fifteen enlisted men with the cooperation of regimental surgeons in the collecting of specimens and the administration of treatment. Oil of chenopodium was used in approximately 5,000 doses without untoward manifestations. Reexamination of all the positive cases, three weeks after treatment, is now in progress and indicates that good results are to be looked for. A second treatment has been given in a few cases and a third and fourth is contemplated, until all cases are cleared up as nearly as possible. The outcome of such a survey should result in a more efficient fighting force, a diminished susceptibility to contagious disease among the men and an increase in resistance, should infection be contracted.

75. **Reaction Following Use of Antipneumococcic Serum.**—Only twice in a series of 200 cases did the authors see symptoms during the giving of the desensitizing doses. One patient had a slight nausea lasting for ten minutes after the 4 c.c. dose. The other patient had an urticaria over a small area surrounding the site of the 2 c.c. dose. In both cases the reaction following the therapeutic dose was very mild. For treatment 100 c.c. of serum is the dose usually used. This is diluted with 100 to 150 c.c. of normal salt solution, heated to slightly more than body temperature and injected slowly into the vein, the conducting tubes being warmed with hot-water bottles. It is the endeavor to inject the serum so slowly that half an hour will be consumed in the process. The reaction that follows is never the same in any two patients, neither is it the same in the patient when the serum is exhibited more than once. A patient having a severe reaction the first time may escape the reaction altogether on repeated doses, or may have a mild reaction or, again, one as severe as in the first instance. Some cases that have little or no reaction on the first dose will show most profound symptoms on the second. The interval of time between doses seems to have no bearing on the reaction with the second dose, although the longest period that has elapsed between doses is ninety-six hours.

The reactions following the use of antipneumococcus serum are so various that one can never be sure just what to expect. The reaction may begin as early as ten minutes after the serum of the final dose begins to enter the vein, or it may be delayed for some time after the treatment is over. The typical reaction may be divided into four stages occurring in rapid succession and a series of secondary symptoms occurring some days later. The first stage may be termed the stage of irritability, the second the stage of shock, the third the stage of hyperpyrexia and the fourth the stage of relaxation. Any of these stages may be very lightly stressed or even absent entirely. If any of the syndrome be absent it is more apt to be the symptoms of shock. The third stage is not always well marked, although some hyperpyrexia is practically always present. Because the reaction starts mildly or severely it does not follow that the subsequent stages are going to develop as initiated.

New York Medical Journal

March 30, 1918, **107**, No. 13

77 Hay Fever and Asthma. R. A. Cooke, New York.—p. 577.
78 Is Early Operation Indicated in Fractures of Spine with Cord Symptoms? A. S. Taylor, New York.—p. 583.
79 Pituitary Tumors from Surgical Standpoint of Rhinologist. O. J. Stein, Chicago.—p. 585.
80 Ischiorectal Abscess from Broken Surgical Needle. J. F. Saphir, New York.—p. 589.
81 Nauheim Method. N. P. Norman, Watkins.—p. 590. Concluded.
82 Correlation of Diagnostic and Musical Ear. C. Hamlin, New York. —p. 597.
83 Septic Cellulitis; Report of Case. R. D. Garcin, Richmond, Va. —p. 598.
84 Instruction Corps for Medical Reserve Officers and Cadets. C. E. de M. Sajous, Philadelphia.—p. 599.
85 Present Status of Pathology of Paratyphoids. C. G. Cumston, Geneva, Switzerland.—p. 603.

New York State Journal of Medicine

March, 1918, **18**, No. 3

86 Differential Diagnosis of Enlargements of Cervical Lymph Nodes. R. S. Haynes, New York.—p. 91.
87 Nose and Throat in Cervical Adenitis. G. B. Wood, Philadelphia. —p. 95.
88 Roentgen Therapy in Cervical Adenitis. G. E. Pfahler, Philadelphia.—p. 99.
89 Cervical Lymph Adenitis Due to Infections Arising in and About Teeth. T. B. Hartzell, Minneapolis.—p. 103.
90 Indications for Removal of Enlarged Cervical Lymph Nodes. C. N. Dowd, New York.—p. 109.
91 War! Some of Its Effect on Health of Military and Civil Population Both During and After War. G. W. Goler, Rochester. —p. 113.

Northwest Medicine, Seattle

March, 1918, **17**, No. 3

92 Lost Art of Obstetrics. P. Findley, Omaha.—p. 67.
93 Analgesics in First Stage of Labor. R. W. Stearns, Medford, Ore.—p. 71.
94 Value of Pituitary Extract in Incomplete Abortion and Placenta Praevia. A. Lipkis, Salt Lake City.—p. 74.
95 Old Parentage vs. Young Parentage. C. L. Redfield, Chicago.—p. 75.
96 Renal Function Tests in Children. C. U. Moore, Portland, Ore.—p. 78.
97 Diagnosis and Treatment of Pyelocystitis in Infancy. C. G. Grulee, Chicago.—p. 82.
98 Important Phases of Allen Treatment for Diabetes. A. H. Rowe, Oakland, Calif.—p. 85.
99 Wassermann Technic. H. Wehrbein, Butte, Mont.—p. 88.

South Carolina Medical Association Journal, Greenville

March, 1918, **14**, No. 3

100 Treatment of Fractures of Elbow Joint. E. C. Doyle, Seneca.—p. 67.

Surgery, Gynecology and Obstetrics, Chicago

April, 1918, **26**, No. 4

101 *Cancer of Stomach. W. J. Mayo, Rochester, Minn.—p. 367.
102 Id. A. J. Ochsner, Chicago.—p. 370.
103 Restoration and Repair of Wound, Combating Contamination and Infection. G. W. Crile.—p. 372.
104 Presentation of Radical Operation for Tuberculosis of Seminal Tract. H. H. Young, Baltimore.—p. 375.
105 Cholangiogastrostomy; Report of Case. R. E. Pasman, Buenos Aires, Argentine.—p. 385.
106 Elephantiasis Treated by Kondoleon Operation. W. E. Sistrunk, Rochester, Minn.—p. 388.
107 *Unusual Skin Infection Due to Bacillus Mucosus Capsulatus Associated with Bladder Drainage after Prostatectomy. E. A. Graham, Chicago.—p. 394.
108 *Immediate Surgery of Gunshot Wounds of Cranium. K. Speed.—p. 396.
109 *Treatment of Septic Abortion. E. Ries, Chicago.—p. 400.
110 *Method of New Joint Formation in Arthroplasty. D. B. Phemister and E. M. Miller, Chicago.—p. 406.
111 Case of Primary Hydatid Cysts of Uterus. A. Turenne, Montevideo, Uruguay.—p. 446.
112 Paraffin Wax or Closed Method of Treatment of Burns. W. O'N. Sherman, Pittsburgh.—p. 450.
113 Treatment of Bunions. J. L. Porter, Chicago.—p. 460.
114 Complete Atresia and Disappearance of Vagina in Multipara. J. F. Baldwin, Columbus.—p. 463.

101. **Cancer of Stomach.**—During a period of twenty years, 651 resections of the stomach for cancer were done at the Mayo Clinic. Of 427 patients operated on more than three years ago who recovered from the operation, 311 have been traced; 120 (38.6 per cent.) were alive three years or more after operation. Of 313 patients who were operated on more than five years ago, 239 who recovered from the operation were traced, and 62 (26 per cent.) of these were alive five years or more after operation. No special effort was made to trace patients after the five-year period, but incidentally it was learned that 35 lived six years or more after operation, 27 lived seven years or more, 18 lived eight years or more, 10 lived nine years or more, 7 lived ten years or more; 5 lived eleven years or more, 3 lived twelve years or more, and 1 lived more than fifteen years after operation.

107. **Skin Infection Due to Bacillus Mucosus-Capsulatus.**—A peculiar ulcerative lesion of the skin following a suprapubic prostatectomy in a man 83 years of age, was found to yield an organism resembling the *Bacillus mucosus-capsulatus*. After running a clinical course of over three weeks with no improvement, it responded quickly to a single cauterization with stick silver nitrate.

108. **Gunshot Wounds of Cranium.**—Of forty-six patients on whom craniotomy was performed following gunshots nine died. None of the patients operated on early developed epilepsy while under observation, but bromids were given as a routine to all who could take them. The author still believes that occipital wounds offer the poorest and frontal the best prognosis on the whole. Considering the variance in mortality where foreign bodies are removed and left in the brain, he is inclined to advocate again their early removal. From the observation of these head wounds, on his own service, and of those of several other surgeons at the clearing stations, Speed believes that much dreaded hernia cerebri seldom follows early operation. Middle meningeal hemorrhage was encountered six times, with only one death, after operation and ligature. Three of these cases sustained depressed fractures of the skull. Bone sinus injuries were found five times. The frontal and mastoid sinuses were involved. When this complication is present with brain injury, it seems wiser to perform an early radical operation to avoid possible infection from the sinus lining. There was only one death in this group of patients, that was undoubtedly influenced by the presence of other wounds. When the frontal sinus connected with the wounded cortical area it was considered best to remove carefully by gentle curettage all mucous surface and to leave small drains to the depth of the sinus.

With four instances of blood sinus injury, there was but one death. These sinus injuries are extremely interesting on account of the tremendous hemorrhage which arises when depressed bone adherent to the sinus wall is removed. On the whole it appears better to leave depressed bone alone under these conditions and to prefer to take a chance on subsequent septic sinus thrombosis rather than to excite an uncontrollable hemorrhage. Gauze packings or packing with a piece of muscle belly removed under sterile precautions from another part of the patient will sometimes control the bleeding quickly. Another technical possibility lies in inserting fine stitches in the dura about the area which threatens hemorrhage. A suitable piece of fascia lata with muscle adherent on the under surface is prepared from the patient's thigh. One end of each thread of the dural stitches is then caught around the edge of the transplanted fascia and muscle at proper intervals, the depressed bone is removed, and if hemorrhage follows, the transplant is rapidly tied into place to control the leakage. The symptom of generalized muscular rigidity, so indicative of blood sinus injury, was present in two of these patients. Partial aphasias were quite common. They were for the most part motor (ataxic) and less often sensory. No instances of optic amnesic aphasia nor auditory aphasia (word-deafness) were encountered. As expressed elsewhere the author still has doubts about the validity of Broca's speech center in the left third frontal convolution. All instances of aphasia made rapid improvement while under observation, and promised ultimate recovery.

109. **Treatment of Septic Abortion.**—The treatment which Ries recommends and carries out in cases of septic abortion is as follows: If a patient with septic abortion is admitted to the hospital, expectant treatment is followed until the abortion is completed spontaneously. Rectal examination is used exclusively and that as rarely as possible. The patient is kept in bed and on a light diet. If severe or protracted slight hemorrhage makes interference unavoidable, the uterus is packed. The packing is removed after twelve to twenty-four hours and frequently the whole remnants of the abortion come away with the packing. If not, the packing has usually dilated the cervix sufficiently so that the uterus can be emptied manually. Repeated packing is not favored as dangerous in itself. If the uterus is not empty after the removal of the packing, it is emptied preferably by hand, if necessary after additional dilatation with Hegar's dilators and if the hand is insufficient, with the sharp curet. The longer the interval between the last rise of temperature and the operation the better. Packing afterward is avoided, unless necessitated by severe hemorrhage. The uterus is never irrigated. Ergot is given only when hemorrhage exists after complete evacuation of the uterus. Vaginal douches are never given until at least a week after the abortion and then only for subinvolution, not for purulent discharges. If the temperature is normal after the abortion, the patient is allowed out of bed at any time she feels ready, unless she is very anemic. The patient is fed well as soon as possible. The patient is discharged three days after the last rise of temperature, unless anemia, subinvolution, etc., require longer hospital treatment. Rectal examination is repeated before discharge.

110. **New Joint Formation in Arthroplasty.**—The changes which follow resection of the articular surfaces and construction of a new joint were carefully studied by Phemister

and Miller. Dogs were operated on by three methods: the no-flap; free flap; pedunculated flap. The results showed that it matters little in experiments on the normal knee and elbow joints of dogs, whether arthroplasty is performed by the no-flap, pedunculated flap, of free flap method. The flaps when used very largely break down and the newly formed joint is about the same, both structurally and functionally, following the three types of operations. The most important steps are the construction of a well-fitting new joint, the excision of any thickened or obstructing fibrous tissues and proper after-treatment for the maintenance of mobility.

Tennessee State Medical Association Journal, Nashville

March, 1918, **10**, No. 11

115 Treatment of Chronic Parenchymatous Nephritis. E. R. Zemp, Knoxville.—p. 423.
116 Tuberculosis of Bladder. P. Bromberg, Nashville.—p. 429.
117 Transfer of Casualties from Front Line Trenches to Evacuation Hospital. W. J. Bell.—p. 438.
118 Treatment of Purulent Conjunctivitis. J. T. Herron, Jackson. —p. 445.

Texas State Journal of Medicine, Fort Worth

March, 1918, **13**, No. 11

119 Amblyopia Ex Anopsia. R. W. Moore, Fort Worth.—p. 381.
120 Prolapsed Ovaries; Diagnosis and Treatment. J. H. McLean, Fort Worth.—p. 384.
121 Relation of Colonic Stasis to General Diagnosis. H. G. Walcott, Dallas.—p. 385.
122 Blood Transfusion. E. L. Goar, Houston.—p. 388.
123 Importance to Applicant of Careful Life Insurance Examination. J. H. Vaughn, Liberty Hill.—p. 389.
124 Toxic Amblyopia. T. F. Roberts, Paris.—p. 391.

Washington Medical Annals

March, 1918, **17**, No. 2

125 Metastatic Bone Carcinoma Following Primary Adenocarcinoma of Left Breast. Mediastinal Tumor with Metastases in Thyroid. C. A. Pfender, Washington.—p. 92.
126 Two Cases of Uterus Didelphys. S. R. Karpeles, Washington.—p. 95.
127 Case of Abdominal Symptoms from Referred Pain. W. J. Mallory, Washington.—p. 99.
128 Treatment of Infected Wounds. W. C. Borden.—p. 101.
129 Id. W. P. Carr, Washington.—p. 111.
130 Two Cases of Phlegmonous Colitis. J. R. Verbrycke, Jr., Washington.—p. 122.
131 Cases of Developmental Alexia or Congenital Word Blindness. G. H. Heitmuller, Washington.—p. 124.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

March 9, 1918, **1**, No. 2984

1 *Suggestions for Prevention of Postoperative Thrombosis and Embolism. F. McCann.—p. 277.
2 *Myomectomy or Hysterectomy. V. Bonney.—p. 278.
3 *Laminectomy for Gunshot Wound. D. M. Hughes.—p. 280.
4 Five Intestinal Operations on Same Patient. H. Hartley.—p. 282.
5 Surgical Work in General Hospital. J. S. Dunne.—p. 283.
6 Two Cases of Infected Fractures; Treated by Lane's Plates and Carrel Dressing. J. MacIntyre.—p. 284.
7 *Gonorrhea Complicated by Syphilis. N. P. L. Lumb.—p. 285.

1. **Postoperative Thrombosis and Embolism.**—McCann believes that transfixion or ligating blood vessels *en masse* favors the development of postoperative thrombosis and embolism. Statistics favor the view that thrombosis and embolism more frequently follow operation on the female genitalia than in other situations. This preponderance was explained by the nature of the tissue involved, but McCann came to the conclusion that the operative technic must also be at fault. He therefore determined to give up transfixion and to operate anatomically, picking up vessels cleanly and ligaturing them without encompassing masses of tissue. The result has been that he has never had another case of postoperative embolism or thrombosis either in private or hospital practice. He says that "never transfix a vascular area" should become a surgical axiom. By transfixion vessels are liable to be punctured and bleed either externally or into the tissues; the transfixing ligature is tied to arrest the bleeding, and the result may be that the ligature remains in the lumen of the vessels. If this ligature is of doubtful asepticity or becomes subsequently infected, the natural process of clotting in the vessel may be arrested, the clot liquefying and becoming detached in portions or in its entirety. Although the diminution of sepsis has been a great factor in improving results, yet it is worthy of note that it is not the severe infections that are followed by these troublesome complications, but rather those of a milder type. If a vessel has been punctured the ligature should be withdrawn and the vessel clamped and tied after removal of the blood clot. The object of a ligature is to approximate the coats of a vessel and to keep them in apposition, not to cut them; hence, do not tie or stitch too tightly and cut into blood vessels.

2. **Myomectomy or Hysterectomy.**—Experience has convinced Bonney that the practice of myomectomy as an alternative to hysterectomy should be considerably extended. He now frequently performs the conservative operation with complete success, where a few years ago he would have removed the uterus. When the tumors are small or of moderate size, the proceeding can be carried out very well through a transverse incision across the pubic hair field. This is a great advantage in relatively young women, especially if unmarried, for it leaves no visible scar.

3. **Laminectomy for Gunshot Wound.**—In the three cases reported by Hughes, (*a*) the paralysis was incomplete in the sense that sphincter trouble was absent; (*b*) the injury was indirect, and due to damage to the spinal column and not to the cord itself; and (*c*) recovery was complete. The immediate effects of the operation in restoring or improving the circulation in the cord were not determined in any case. The dura was not opened in any one of the three cases.

7. **Gonorrhea Complicated by Syphilis.**—Lumb emphasizes the fact that modern antisyphilitic treatment at times (1) stirs a latent gonorrhea into activity; (2) leads to the development of complications; (3) renders the gonorrheal lesions very intractable. A patient presenting himself with signs of both syphilis and gonorrhea is commonly given thorough antisyphilitic treatment without delay, while the sum total of the treatment advised for gonorrhea is an irrigation twice a day with permanganate of potassium. This plan is unsatisfactory.

Edinburgh Medical Journal

March, 1918, **20**, No. 3

8 Gunshot Wounds of Peripheral Nerves, with Reference to Indications for Resection and Suture. E. Bramwell.—p. 147. To be continued.
9 Acquired Acholuric Jaundice (Hemolytic Icterus). J. Eason.—p. 158.

Indian Journal of Medical Research, Calcutta

October, 1917, **5**, No. 2

10 *Two Years Experience of Sodium Gynocardate and Chaulmoograte Subcutaneously and Intravenously in Treatment of Leprosy. L. Rogers.—p. 277.
11 Dysentery in Mesopotamia. F. W. Cragg.—p. 301.
12 Dysentery in Jails of Eastern Bengal. J. Cunningham and H. H. King.—p. 330.
13 Bacteriologic Studies of Cholera-Like Vibrios Isolated from Stools of Cholera Cases in Calcutta. E. D. W. Greig.—p. 340.
14 Final Report on Ankylostome Inquiry in Darjeeling District of India. C. Lane.—p. 350.
15 *New Species of Spirochete Isolated from Case of Rat-Bite Fever in Bombay. R. Row.—p. 386.
16 Summary of Results of Observations on Treatment of Oriental Sore by Antimonium Tartaratum. E. D. W. Greig.—p. 394.
17 *Intravenous Injections of Mercuric Chlorid in Treatment of Enlarged Spleen. E. D. W. Greig and W. D. Ritchie.—p. 401.
18 Preparation of Bacteriologic Nutrient Medium by Means of Mineral Acid. T. C. Boyd.—p. 408.
19 Etiology, Course and Treatment of Rabic Infection. A. G. McKendrick and C. J. Fox.—p. 413.

10. **Treatment of Leprosy.**—A year's further experience has confirmed Rogers' previous observation that intravenous injections of the sodium salts of the fatty acids of chaulmoogra oil obtained from the seeds of *Taraxtogenos kurzii* produce reactions in leprous tissues with breaking down of the acid-fast bacilli, which reactions are followed by great improvement. The higher melting point acids, which furnish sufficiently soluble salts (melting points of from 49 to 62 C.) are considerably more active than the lower 37 C. melting point acids first used by the author for injection. Subcu-

taneous injections do not produce reactions in the leprous tissues and are less effective than intravenous ones. Prolonged oral administration in quantities of 20 grains and upward daily has a good effect, especially if intravenous injections have previously been given and also in conjunction with them. Between one and two years were required to cause the lesions to disappear in the successful cases treated by Rogers, but, he thinks, that this period may possibly be reduced by the use of the more active higher melting point preparations, which have only been under trial for the last six months. The lesions have disappeared in 50 per cent. of cases treated within three years of the onset of the disease, including cases treated for only three to twelve months, but in cases of from three to fifteen years' duration, only 25 per cent. cleared up under the treatment. The most active constituent of the oil has not yet been obtained in a pure state.

During the last fourteen months Rogers has employed the intravenous route very extensively, and has now given well over 1,000 intravenous injections of the drug without any ill effects beyond temporary giddiness and headache and occasional localized clotting in the veins, while the results have been most encouraging. The sodium salts of the fatty acids obtained from chaulmoogra seeds are dissolved in water in a strength of 3 per cent., so that 2 c.c. contain 1 grain of the salts, which allows of the ready calculation of the doses in either grains or fractions of a gram. The solution may be sterilized in an autoclave and 0.5 per cent. phenol added, or it may be phenolized first and then heated on a water bath to 100 C. for twenty minutes. Rogers begins treatment with at least half a grain in 1 c.c. and increases by 0.5 to 1 c.c. at a time until 2 to 2½ grains in 4 or 5 c.c. is reached, provided severe giddiness is not produced. The higher melting point preparations are slightly more toxic than the lower ones. The injections may be given once or twice a week, and on the other days 2-grain pills or tablets of the drug may be taken by mouth after meals, beginning with one three times a day and increasing by one daily until ten or twelve are taken each day, as long as the digestion is not disturbed or giddiness produced; some patients are able to take as much as 40 grains in twenty pills daily with advantage. In most of the cases detailed only intravenous injections were given and no pills taken, so that good results can be obtained with the injections alone. This is of importance in leper asylums with strictly limited incomes.

15. **Spirochete from Case of Rat-Bite Fever.**—The rat-bite fever of the patient under consideration was caused by the inoculation of a specific spirochete by the bite of the rat which had probably a generalized spirochetosis. The spirochete recovered from the human lesion was quite different from any hitherto described, being from 2 to 3 microns in length and showing only two or sometimes three curls. This spirochete was communicable and pathogenic to mice and rats. Before the demonstration of the virus in the papules, the typical paroxysms of the fever with crises and relapses suggested a spirochetal infection clinically, and the subsequent demonstration of the spirochetes in the lesions confirmed the diagnosis. The complete cure after the injection of neosalvarsan and the rapid disappearance of the eruption (on the third day after the injection) is considered by Row to be further evidence of the spirochetal cause of the symptoms in the case under consideration.

17. **Mercuric Chlorid in Treatment of Enlarged Spleen.**—Fifty cases of chronic malaria with enlarged spleen were treated by Greig and Ritchie with mercuric chlorid and quinin and fifty-four cases with quinin alone, the latter being controls. The procedure was to administer intravenously 11 c.c. of a 1 to 1,000 mercuric chlorid solution in normal saline on alternate days; and a daily dose of 30 grains quinin in three portions was given by the mouth to both injections and controls. The injections covered a fortnight—eight doses being given—and were then stopped, but quinin was continued for another week to all the patients and a final inspection of the spleens was made at the end of the third week. Very few patients had fever and all were on splenic mixture containing 5 grains quinin per dose two days before the test began. The results of the authors' observations have brought out several points of considerable interest. In the first place, their experience does not entirely confirm the work of the American observers as regards the reduction in size of the spleen by combined treatment with intravenous injections of perchlorid of mercury and quinin, although the combined method of treatment had a greater effect in reducing splenic enlargement than quinin alone. The group on quinin alone had sixteen cases in which treatment failed, while the group on quinin and mercuric injections had only seven failures. Sixteen cases of the combined treatment series showed a two-fingers reduction in size of spleen as compared with eight in the case of quinin alone.

Indian Medical Gazette, Calcutta

December, 1917, **52**, No. 12

20 Epidemic of Jaundice in Waziristan Field Force. C. H. L. Meyer.—p. 425.
21 Necrosis. Produced by Intramuscular Injections of Strong Solutions of Quinin Salts. A. C. MacGilchrist.—p. 426.
22 Anomalous Type of Kala-Azar. G. D. Price.—p. 427.
23 Presence of an Easily Precipitable Anticomplementary Globulin Like Substance in Human Serum and Its Importance in Diagnosis of Kala-Azar. U. N. Brahmachari.—p. 429.
24 Tuberculin in Dispensary Practice. J. C. Vaughan and G. Das Gupta.—p. 431.
25 Report of Vaccination Carried Out of East Indian Railway Medical Staff Over a Period of Nineteen Years from 1893 to 1913. H. G. Waters.—p. 434.
26 Prevalence of Helminth Infection among Prisoners Admitted in Central Jail, Myingyan. T. V. A. Nambiar.—p. 436.
27 Some Personal Equations and Pathogenic Coefficients in Diabetes. B. N. Anklssaira.—p. 439.
28 Multiple Abscess in Brain. F. F. S. Smith and L. S. Dudgeon. —p. 443.
29 *Palmyra Fiber, as Suturing Material in Place of Silkworm Gut. G. Srinivasamurti.—p. 444.

January, 1918, **53**, No. 1

30 Destruction of Rats as Means for Prevention of Plague. G. W. P. Dennys.—p. 1.
31 Three Cases of Actinomycosis Hominis. T. Sur.—p. 5.
32 Case of Actinomycotic Pleuro Mediastinitis. B. Saha.—p. 11.
33 New Operation for Cataract. T. Husain.—p. 12.
34 Rectal Anesthesia; Report of Eighty-Two Cases. R. H. H. Goheen. —p. 17.

29. **Palmyra Fiber, Suturing Material in Place of Silkworm Gut.**—This fiber is obtained from the fibrous netting that surrounds the bases of the leaves of the toddy palmyras growing luxuriantly on the West Coast, especially Malabar. The fiber is easily obtained and can be had in all required sizes, requires very little preparation before it is ready for use and is easily preserved, keeps well and is easily sterilized, is fairly strong and sufficiently flexible, is phenomenally inexpensive and the supply is well nigh inexhaustible. The author strongly recommends the use of palmyra fiber in all cases in which silkworm gut is used.

Journal of Tropical Medicine and Hygiene, London

March 1, 1918, **21**, No. 5

35 Tinea Imbricata in South Africa. A. Pijper.—p. 45.

Medical Journal of Australia, Sydney

Feb. 9, 1918, **1**, No. 6

36 Gunshot Wounds of Knee Joint. F. L. Gill.—p. 102.
37 Case of Preputial Calculus. A. Mahon.—p. 105.
38 *Two Cases of Ruptured Duodenal Ulcer. L. W. Roberts.—p. 105.

Feb. 16, 1918, **1**, No. 7

39 Experimental Pathology of Acute Poliomyelitis (Infantile Paralysis). A. W. Campbell, J. B. Cleland and B. Bradley.—p. 123.
40 Labor after Decapsulation of Both Kidneys. J. Rosenthal.—p. 128.

Feb. 23, 1918, **1**, No. 8

41 Anesthetic and Other Notes. R. W. Hornabrook.—p. 143.
42 Dermatomycosis in Mice and Men. H. Lawrence.—p. 146.

38. **Ruptured Duodenal Ulcer.**—An alcoholic dyspeptic, aged 61, had sudden intense general abdominal pain with bilious vomiting. When seen thirty hours later he had an abdominal facial aspect, was perspiring profusely; pulse rate 70; temperature normal; no actual collapse. The abdomen was generally tender with increased pain over and at a level of the umbilicus; right-sided rigidity, more marked at the lower quadrant. His case was regarded as an acute appendicitis. The abdomen was opened forty-eight hours after the

onset by the usual appendix incision, and the appendix, which was in a state of chronic thickening, but quite quiescent, was removed and a quantity of thin creamy fluid with fibrinous flakes evacuated. No free gas was noticeable. A paramedian incision made in the epigastrium revealed a small ruptured ulcer in the anterior part of the first portion of the duodenum and a generalized plastic peritonitis. The duodenal area, the right kidney pouch and the pelvis (through a suprapubic stab) were all drained after closure of the ulcer. The patient progressed well for a fortnight, when he experienced a sudden attack of sharp pain in the left side of the chest. There was detected a slight pleuritic rub. The attack was succeeded by a continuous pulse rate of over 110, and for three nights there was a slight nocturnal rise of temperature to 38 C. Early the next morning he suddenly coughed up quantities of blood-stained pus, and died suffocated in six hours. Permission to perform a postmortem examination was not obtained, and death was certified as having been due to lung abscess, either caused by a septic pulmonary infarct (shown by the pain in the chest five days previously) or rupture through diaphragm of a subphrenic abscess. In the second case the diagnosis lay between an acute appendicitis, a ruptured gastric ulcer and, less probably, an ectopic pregnancy. At operation it proved to be a perforated stomach ulcer, the result of the lifting of a heavy tub.

Archives de Médecine des Enfants, Paris

March, 1918, **21**, No. 3

43 *Normal Weight of Schoolchildren. J. E. L. Camescasse.—p. 113.
44 *Backward Development of the Bowels. J. Comby.—p. 150.

43. **Weight of Schoolchildren.**—This article analyzes the data at a rural sanatorium and orphan asylum for Paris children; 2,571 boys and 2,506 girls were weighed at regular monthly intervals. Camescasse deduces from his statistics a set of diagrams showing the normal weight at different ages. For example, three girl babies weighing, respectively, 2, 3 and 4 kg. at birth, at the age of 16, each developing normally, should weigh, respectively, 39, 49 and 59 kg. Three boys weighing 2, 3 and 4 kg. at birth, at 16 should weigh 36, 49 and 62 kg. A girl weighing 14 kg. at 4 should weigh 19.1 kg. at 7; 27 kg. at 11; 40 kg. at 14, and 56 kg. at 20. By comparing the actual weight with the standard weight for the age we can detect possibly latent disease, and if the weight does not increase proportionately under hygienic conditions, the outlook is less promising. The two charts he has drawn for girls and boys, and here reproduces, are proving very useful standards for this purpose.

44. **Infantilism of the Intestine.**—Comby does not approve of Stoos' statements in regard to infantilism of the bowel. The fourteen cases he described do not require this label as they fit into the ordinary picture of infants debilitated by digestive disturbances or repeated gastro-enteritis.

Bulletin de l'Académie de Médecine, Paris

Feb. 19, 1918, **79**, No. 7

45 Significance of Elements of Scapular Girdle in Vertebrates. R. Anthony.—p. 146.
46 Projectile Reaching Right Ventricle from Inferior Vena Cava. F. Menuet.—p. 148.
47 The Spiroscope to Train in Breathing After War Wounds of the Chest. J. Pescher.—p. 151.

Feb. 26, 1918, **79**, No. 8

48 *Emotive Psychoneuroses; Two Cases. M. de Fleury.—p. 157.
49 *Meningitis in Troops on Active Service. Dopter.—p. 169.
50 Intravenous Injection of Drugs Insoluble in Water. Chevallier.—p. 171.
51 Discontinuous Chloroform Anesthetization. H. Chaput.—p. 173.
52 Adhesive Plaster Occlusion Treatment of Lupus. Chateaubourg.—p. 174.
53 Appendicitis with Pseudomyxomatous Diverticulum. Villar.—p. 175.

48. **Emotive Psychoneuroses.**—De Fleury agrees with Dupré that besides neurasthenia and hysteria we must accept a third group of psychoneuroses, the emotive type, a constitutional or acquired *émotivité*. They have been classed hitherto mostly as traumatic neuroses, but the traumatism merely reveals or aggravates the constitutional instability. The train of symptoms from loss of balance in the circulatory, respiratory or digestive system, the tremor, the disturbance in the rhythm of the heart beat, the exaggeration of the reflexes—all this represents an enormous total of automatic neuromuscular activity which has nothing in common with the clinical exhaustion of neurasthenia. The spasmodic constriction of the muscles of the neck, and local spasms elsewhere distinguish the emotive psychoneuroses from hysteria. These two conditions are not only distinct but are separated by a deep chasm, the chasm which parts honest veracity from a morbid tendency to falsehood. With the emotive psychoneurosis the subject is ashamed of his symptoms and seeks to conceal them, while with hysteria, the subject seeks to display them theatrically, and the symptoms vanish when there are no longer any witnesses. This conception of the hyperemotive constitution clears up at once the puzzling field of psychoneuroses. They all fall naturally into the three classes: neurasthenia, hysteria and the emotive constitution, sincerity being an attribute of the latter in distinction from hysteria.

49. **Meningitis Among the Troops.**—Dopter relates that epidemic meningitis occurred in the *zone des armées* in the proportion of 0.42 per thousand men in 1915; 0.18 in 1916, and 0.15 in 1917. Most of the cases were in the training camps, the infection being brought in by new arrivals from regions where a few cases had been observed; the fatigue of the trip and the chilling on the way were certainly predisposing factors. The disease presented an endemic character, the cases were scattered at relatively distant points, but occasionally six or eight sick or carriers were found at one point. Prophylaxis was carried out as in times of peace by isolation of the sick, and isolation of the contacts (men under the same roof or in the same shelter) until they were all examined and found free from meningococci. Not many carriers were discovered.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 28, 1917, **41**, No. 37

54 Paralysis of Brachial Plexus from Tuberculous Apical Process; Three Cases. A. Léri and M. de Teyssieu.—p. 1309.
55 Motor Aphasia from Concussion. A. Léri.—p. 1314.
56 *Suprarenal Insufficiency in the Troops. A. Satre.—p. 1318.
57 Chronic Nephritis and Pulmonary Tuberculosis. Nathan.—p. 1323.
58 Epidemic Meningitis with Intermittent Fever. Serr and Brette.—p. 1325.
59 Streptococcus Sepsis and Arthritis plus Pneumococcus Pneumonia. F. Rigaux and J. Gaté.—p. 1331.
60 *Leukoplasia. G. Railliet.—p. 1333; (id.)—p. 1336.

56. **Suprarenal Insufficiency in the Troops.**—In the case described a man of 26 was vaccinated against typhoid and this upset the unstable balance of latent disease of the suprarenals. Acute suprarenal insufficiency followed. Sergent, in the discussion that followed Satre's report, called attention to the increasing prevalence of symptoms of suprarenal insufficiency in the men on active service. The conditions of trench life tend to depress suprarenal functioning, and men with weak suprarenals suffer most. He queries whether this may not be an important element in the clinical picture of shock, and whether some of the *shockés* might not benefit from immediate and systematic suprarenal treatment.

60. **Buccal Leukoplasia.**—Railliet found leukoplasia in 135 out of 409 men at the front. His experience suggests that inherited syphilis may be incriminated in certain cases. The influence of smoking is undeniable, but it seems to act only on a pathologic foundation.

Lyon Chirurgical

November-December, 1917, **14**, No. 6

61 *Surgery at the Advanced Stations. C. Viannay.—p. 921.
62 *Infection of the Pleura with Chest Wounds. J. L. Roux-Berger and A. Policard.—p. 969.
63 *Film Dressing for Wounds. A. E. Robert.—p. 1048.
64 *Tardy Resection of Joints. G. Jean.—p. 1055.
65 Lengthwise Wounds of the Knee. R. Leriche.—p. 1079.

61. **Surgery at the Advanced Posts.**—Viannay remarks that surgery at the advanced posts has shown a constant evolution but that now, at the fourth year of the war, it seems to have reached a plane where the great principles are firmly estab-

lished. The surgeons at various scattered posts seem to have evolved these principles almost independently and simultaneously. This concordance guarantees the great verities involved: early and complete excision of all devitalized tissue, and then closing up the wound—all wounds, wounds of soft parts, joints, fractures. Immediate suture is the aim, and rapid recuperation. The majority of the wounded are healed in two or three weeks, many others, including extensive fractures, are healed in two months. He operated in 400 cases during a quiet period and sutured at once completely in 222 cases, partially in twenty-eight others. There was no need to open up the suture except in nine cases. The primary suture therefore was a success in 96 per cent. of 222 cases. With fractures, primary suture may be relied on if the projectile merely hit the bone, but if it traversed the bone, primary suture cannot be counted on with so much confidence.

62. **War Wounds of the Chest.**—Seventy-nine pages, with twenty-seven illustrations, are devoted to emphasizing the importance of applying the same general principles to chest wounds as to wounds on the limbs. The fractured rib should be removed, but it is impossible to excise all the devitalized lung tissue. It should be sutured, and the skin sutured. When this prompt and thorough débridement has not been done, the pleura grows thick and hard and outer portions of the lung harden into a kind of shell, while lesions of the acute bronchopneumonia type develop in the lungs. Sixteen of these old cases are reported in which the suppurating pleura was excised or decorticated, and the cavity drained and disinfected. Nine were cured by the intervention; the others were too debilitated to rally.

63. **Film Dressing.**—Robert mixes 100 gm. of paraffin, with a melting point of 48 or 49 C., with 3 gm. natural gutta percha, and uses this for a hot film dressing. The gutta percha permits a temperature of 80 C. without its burning the tissues, and wherever a film dressing is indicated, that is, he says, for large dry wounds, this dressing is proving very useful.

64. **Tardy Resection of Infected Joints.**—Jean has operated in sixty cases one or two months after the war wound, and he here holds the mirror up to these experiences. Good results were obtained almost always with the shoulder, but the wrist seldom is left with much capacity for movement. With the elbow, the outcome depends mainly on the postoperative care. In his ten hip cases, 80 per cent. of the men died. With an old discharging fracture of the knee, with fever and bad general state, he advises amputation, as also when the lesion extends over an area more than 10 cm. in length, and when the tibia is mainly involved in the injury. His experience testifies to the advantages of resection when the general state permits. For simple ankylosis with fistula he advises merely curetting and heliotherapy.

Paris Médical

Feb. 16, 1918, **8**, No. 7

66 *The Oculocardiac Reflex in Shock. H. Dorlencourt.—p. 130.
67 Aerophagia in the Tuberculous. C. Sabourin.—p. 136.
68 *Deep Palpation of the Stomach. L. Pron.—p. 139.
69 *Prophylaxis of Venereal Disease. Bourdinière.—p. 141.

66. **The Oculocardiac Reflex during Shock.**—Summarized in the Paris Letter, p. 1021.

68. **Deep Palpation of the Stomach.**—Pron describes the technic with which he has often found it possible to determine the lower margin of the stomach, the patient reclining supine and breathing deep. The palpation is done with the radial margin of the hand in semipronation during the patient's expiration.

69. **Prophylaxis of Syphilis, and Medical Secrecy.**—Bourdinière presents a number of arguments based on his daily practical experience as medical officer to a regiment of heavy artillery. The men are from southern France and northern Africa, and 50 per cent. of the creoles have long had syphilis, as also 6 per cent. of the other men. In civilian circles every effort is made to respect the desire for secrecy in cases of venereal disease, but every soldier who goes for treatment to the special venereal disease hospital is certain that every one in the company or the battery will know of it. Hence both officers and privates try to conceal their infection and neglect treatment. The man's card record also shows his infirmity to all who read it, thus annulling the efforts at secrecy by some of the medical officers through whose hands he has passed. Bourdinière's daily experience confirms the disadvantages of this lack of secrecy and the harm wrought by it, the men losing their confidence in the physician. Among the measures he suggests to correct this is that the medical inspection should be private, apart from the eyes and ears of others. The man's card should not specify that he has venereal disease. This information should not be given to any one except the superior medical officer. The venereal hospital services should form part of the general hospital, to avoid any stigma. Bourdinière adds that greater use should be made of the natural curiosity of many men, officers and privates, as to the damages that may be wrought by syphilis and gonorrhea. Moving pictures portraying them might be shown the men two or three times a year, by orders from headquarters. In conclusion he remarks that progress would be realized if the commanding officer of the locality where the infection was contracted were notified by the regimental physician so that the authorities could be on their guard, but specific denunciation of the house is impracticable.

Presse Médicale, Paris

March 4, 1918, **26**, No. 13

70 *Bone Grafting. L. Bérard.—p. 113.
71 The Fifth Cusp. E. Jeanselme.—p. 116.
72 Intramuscular Injections of Quinin in Malaria. Leenhardt and T. Tixier.—p. 119.

70. **Bone Grafting.**—Bérard refers to grafts to repair gaps in the tibia left by war wounds. If sequesters are left, with plenty of periosteum, there may be spontaneous regeneration of bone tissue. In three cases a sequester 7 or 10 cm. long, protected against necrosis by Carrel irrigation or other means, enabled regeneration so extensive that in from five to eight months a solid callus formed restoring the complete use of the leg. If this has not occurred in the course of eight or twelve months he then resorts to bone grafting. He takes the graft from the tibia itself, instead of sacrificing a sound bone, and has always been successful in this line. In two of his five cases, however, there was residual infection, requiring reopening of the wound and Dakin sterilization, but this did not interfere with the final consolidation. He gives illustrations of the findings at different intervals. The graft was split off from the tibia above or below the gap, cutting it to fit exactly into the space, the ends pointed or beveled to fit into the bone above and below. Some of the illustrations show the man standing on the grafted leg, holding his other leg up in the air.

Progrès Médical, Paris

Jan. 19, 1918, **33**, No. 3

73 Treatment of Chest Wounds. R. Dupouy and E. Lebrun.—p. 19.
74 Association of Paratyphoid B and Spirochete in Case of Infectious Jaundice. J. Tapie.—p. 22.

March 9, 1918, **33**, No. 10

75 *The Epinephrin Functional Test of the Heart. Loeper, Wagner and D. Roquebert.—p. 83.
76 Imported Malaria. M. Blatin and H. Paillard.—p. 84.
77 Paradoxes of Odors. P. Voivenel.—p. 88.

75. **Epinephrin Functional Test of the Heart.**—Loeper and his co-workers here give their conclusions from prolonged study of 100 cases before and after administration of epinephrin. This induces vasoconstriction which raises the blood pressure, thus throwing extra work on the heart. The sound heart responds with energy, and radioscopy shows slight if any change in the outline of the heart an hour later. A weak heart dilates at once and the dilatation persists some time. This indicates weakness of the myocardium, either of the muscle itself or the innervation, simple exhaustion or a valvular lesion. The dilatation is most pronounced with mitral disease. With aortic insufficiency, the aorta may become dilated under the epinephrin test while the apex region shows no change. The test dose of epinephrin is 1 mg., and the subject has to keep absolutely still, against the table used in

the test. The radioscopy is repeated three times at half hour intervals; the findings at one hour are the criterion. The normal heart shows a very slight shrinking of the outline after an hour and a half, testifying to the secondary constricting action on the musculature of the heart.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Feb. 9, 1918, **48**, No. 6

78 *Differential Diagnosis of Neuroses. O. Nägeli.—p. 161.
79 *Somatic Changes with Emotions. E. Frankhauser.—p. 178.
80 *Changes in Weight with Healing Tuberculosis. G. Jchok.—p. 190.

Feb. 16, 1918, **48**, No. 7

81 *Bacteria Carriers. W. Silberschmidt.—p. 209.

Feb. 23, 1918, **48**, No. 8

82 *Postoperative Psychoses. M. Tramer.—p. 241.
83 *Goiter in Switzerland. H. Hunziker.—p. 247. Commenced in No. 7 p. 220.
84 Ski Stretcher. J. Poult.—p. 261.
85 Whole Wheat Bread. M. Hindhede.—p. 265; E. Feer.—p. 265.

78. **Neuroses.**—Nägeli remarks that nowadays the most important thing in the field of internal medicine is a good knowledge of the neuroses, and in nothing else are there so many blunders made in diagnosis and treatment. Symptoms are ascribed to hysteria or to neurasthenia and a grave organic lesion is overlooked, or, even more frequently than this, grave organic disease is assumed when the symptoms are merely of a functional nature. In study of the neuroses, the neurologic findings must be disregarded and the psychic condition determined as the basis for diagnosis and treatment. The more numerous and diverse the complaints of subjective symptoms, the more probable the assumption of a neurosis, and in all cases the early recognition of the neurosis and the return to work are greatly to the true advantage of the patient. He cites figures to the effect that five sixths of the cases of sciatica at Baden spas in 1917 proved to be merely neuroses, and three fourths of the cases of supposed heart disease at Nauheim, and in these cases the spa treatment is of no benefit. Nägeli's own experience further confirms that in a large proportion of cases of rheumatism the trouble is merely a neurosis. Physicians shrink from telling the patient that his trouble is merely a neurosis. Only the combination at the same time of dilatation, hypertrophy, murmurs and possibly changes in the pulse exclude a cardiac neurosis, as a rule, and even this combination only when it fits into the frame of a given valvular disease.

79. **Somatic Changes Under the Influence of Emotions.**—Frankhauser presents data from physiology and pathology to sustain the assumption that strong emotions may induce somatic processes in the brain, modifying the innervation of certain still unknown neurons and possibly also of the glands with an internal secretion. Hysteria, shell shock and certain other neuroses are accompanied by disturbance of this innervation. This disturbance may occur from purely physical or purely psychic causes, or from both. Psychotherapy acts by setting in play other emotions which are capable of influencing the morbid innervation processes, and hence are liable to influence purely somatic phenomena. Because some morbid somatic process can be thus influenced by psychotherapy, this does not justify the assumption that the morbid process is necessarily of a psychogenous nature.

80. **The Variations in Weight with Healing Tuberculosis.**—Jchok analyzes the weight findings in about 100 tuberculous French soldiers interned in a Swiss sanatorium. The course at the sanatorium averages sixteen months, and the food averages 3,370 calories a day. This includes only 80 gm. of fat. The men gained in weight at first but as they improved they lost considerably in weight. This, he explains, is merely the casting off of the superfluous fat and is not a cause for alarm. As the men resumed exercise and work, the added fat was lost; as there was no return of symptoms, this must be regarded as merely the organism adapting itself anew to the conditions of life. The cicatrization of the infected areas in the lung deprives the body of that much functionally capable tissue, and the circulation and total metabolism are reduced in proportion, and the body gradually settles into a physiologic balance.

81. **Bacteria Carriers.**—Silberschmidt discusses the importance of carriers with epidemic meningitis, diphtheria and typhoid according to the findings at the Hygiene Institute of the University of Zurich. There have been a number of small epidemics of meningitis in barracks in Switzerland since 1906. The largest number was eleven in any one epidemic, and the cases all developed within seven or ten days. Carriers were found in from 10 to 30 per cent. and more of the men in the environment, mostly with mild catarrhal inflammation. These and other data cited justify the conclusion, he asserts, that carriers are not the main factor in the development of the disease. The large number of carriers is out of all proportion to the small number of cases. Predisposing factors are evidently mainly responsible. With diphtheria, on the other hand, carriers play an important part in the distribution of the disease, and they are comparatively few in number. It is of indispensable importance to see that convalescents are freed from diphtheria bacilli before they are released. The time and efforts required to free the convalescents from the bacilli are well spent. Typhoid convalescents and carriers must be kept under control until free from typhoid bacilli. The problem of carriers can be solved only by the working together of the hospital, the general practitioner, the bacteriologic laboratory and the hygiene institution, adapting their measures to the individual case and epidemic.

82. **Postoperative Psychoses.**—Tramer reports two cases which confirm the generally accepted view as to the benign nature of these disturbances, particularly when patients can be given specialist treatment. In both his cases there had been such extreme dread of the operation that this evidently cooperated in the production of the psychosis. He adds that surgeons might do well to warn the family of a possible postoperative psychosis when such abnormal dread is encountered.

83. **Cause and Prevention of Goiter.**—Hunziker concludes his long study of the prevalence of goiter in different regions and altitudes of Switzerland. The data he presents apparently sustain his theory that goiter is a functional hypertrophy of the thyroid caused by the effort of the organism to make up a deficit in the iodin supply. As the iodin naturally is supplied in the food, goiter is prevalent in regions where the vegetation lacks the standard proportion of iodin. Iodin-containing manure in the regions where goiter is endemic might supply the vegetables with the needed iodin, and thus exterminate goiter. The main goiter regions he found are at a moderate altitude, from 600 to 1,000 meters; above and below this, goiter is less prevalent. In one comparatively exempt canton he ascertained that the cooking salt used had an unusually high iodin content. In certain years goiters develop more numerously than in others. This may be due to rains which wash the salts out of the soil. A sandy soil yields them up more readily to the rains. In a rainy season, also, the vegetation grows less luxuriantly and takes up less of the salts in the soil. At altitudes above 1,000 meters, the vegetation grows so luxuriantly when it gets a chance to grow that it works deep into the soil and takes up the salts. It is significant further that the comparatively exempt cantons have their main rainfall in the autumn, instead of in the spring as elsewhere. In short, he declares, goiter is an adaptation to an iodin-poor diet. The iodin-poor vegetables are what connect goiter with climate and geological formations. The simplest way to remedy the poverty in iodin would be to have salt made with a small admixture of iodin. He suggests parenthetically that it had better be investigated whether the iodin in salt in bread may not be volatilized by the heat of the baking. A year of such "fertilizing" of human beings on a large scale by adding iodin to the salt would go far toward solving the problem. A still simpler plan would be to have the salt taken from the salt springs in the comparatively exempt canton of Waadt sent to a canton where goiter is very prevalent, exchanging it for the salt made from the iodin-poor salt springs in the latter canton. All the testimony and arguments presented emphasize the importance of insuring an ampler iodin intake in regions where goiter is prevalent.

Archivos Españoles de Pediatria, Madrid

January, 1918, **2**, No. 3

86 *Fractures of the Skull. E. S. Ordoñez.—p. 1.
87 Hidroa in Children; Two Cases. E. de Oyarzabal.—p. 16.
88 *Evils of Sweat-Shop System. R. Pinilla.—p. 20.
89 *Calculi in Child's Kidney. P. Cifuentes.—p. 26.

86. **Fracture of Skull in Children.**—Ordoñez gives the details of six cases of fracture of the skull in children from 4 to 12 years old, with the necropsy findings in one case. All the other children recovered. The child's brain can stand traumatism remarkably well in comparison to the child's great susceptibility to other pathogenic influences, such as meningitis. But at the same time this tolerance is not equivalent to an absolutely benign course. The prognosis depends in large measure on whether the brain is exposed or not, but even the simple closed fractures, especially in the frontoparietal region, may entail jacksonian epilepsy. With a closed fracture, abstention should be the rule; the symptoms from concussion and even focal symptoms may subside spontaneously, as in one of the cases described. Intervention is required of course if the symptoms indicating pressure on the brain are grave and prolonged, or there is paralysis or epilepsy. Even with a compound fracture, if the opening is small, abstention may prove successful, as in one of the cases reported. With extensive prolapse of the brain, deep infection seems inevitable, and prolapse is liable to follow any attempts to enlarge the opening in the skull.

88. **The Sweat-Shop System in Madrid.**—Pinilla mentions in discussing home work for pay that this system is producing in Madrid an immense number of tuberculous children, while it prevents the normal development of the women and injures the population of the future.

89. **Kidney Stones in Child.**—Cifuentes was unable to determine whether stones or tuberculosis was responsible for the hematuria and pain in the right kidney of a boy of 7. He had been complaining of pain in this region for three years and the urine was turbid, but there were no signs of pronounced cystitis although there was fever at times. The urethra is too narrow in boys of this age to admit the cystoscope, but the response to the indigo carmin test was satisfactory, and the normal aspect of the other kidney was ascertained by an exploratory lumbar incision on the left side. Thirteen days later the right kidney was exposed and found full of pus, with five branching stones, and cystic dilatation, the ureter also pathologic. Ten days after the nephrectomy there was some hematuria for a day. He is convinced that nephrolithiasis in children is sometimes mistaken for or masked by bowel trouble. Uricemia is comparatively common in children from 2 to 8, the result of food too rich in nitrogen for their age. This predisposes to lithiasis, but it generally takes the form of sand which may pass off without pain, or it may accumulate in the bladder and form a large stone. Prophylaxis depends on the diet, and this is a most important problem in the hygiene of the child.

Brazil-Medico, Rio de Janeiro

Dec. 29, 1917, **31**, No. 52

90 *The Adams-Stokes Syndrome. H. Ribeiro.—p. 441.
91 Lice in Transmission of Smallpox. A. Ferrari.—p. 443.

Jan. 19, 1918, **32**, No. 3

92 *Medicolegal Aspect of Findings in Air Passages. O. Freire.—p. 17.

90. **Adams-Stokes Disease.**—The workingman of 68 had a ventricle beat of only 14 and sometimes it dropped to 11; at these times there were attacks of syncope and epileptiform seizures. The positive Wassermann called for specific treatment, supplemented with trinitrin, atropin or spartein, and the pulse was gradually brought up to 24 in less than a month, after which there were no further attacks. The man is still in the hospital and doing well.

92. **Medicolegal Aspect of Foreign Bodies in Air Passages.**—Freire found a small snail shell impacted deep in a bronchus in a cadaver taken from the bay. He deduced from this that the man must have aspirated the shell in drowning, and that the scene of the drowning was probably close inshore where this variety of shell abounds. He cites other cases in which a leaf, part of a flower, seed or grain in the air passages revealed not only the probable location where the death occurred but also suggested the approximate date.

Cronica Medica, Lima

January, 1918, **35**, No. 655

93 Diagnosis of Duodenal Ulcer. E. Odriozola.—p. 1.
94 *Echinococcus Cysts in the Lungs. A. Corvetto.—p. 7.
95 The Pseudo-Beetles of Peru. (Algunos nuevos pseudomeloides.) E. Escomel.—p. 10.
96 *Meningeal Suprarenal Insufficiency. A. S. Moreno.—p. 17.
97 *The Tear Sign of Actual Death. R. A. de Toledo.—p. 20.

94. **Echinococcus Cyst in Lung.**—At necropsies of persons with pulmonary tuberculosis, Corvetto found in three cases a primary echinococcus cyst in a lung, the spleen or the liver, which had escaped detection during life. He here describes a case of primary echinococcus disease of the lung, diagnosed during life. The symptoms suggested incipient pulmonary tuberculosis, with recurring slight hemoptysis and cough, the sputum scanty and mucous. After four months of this the man felt sudden suffocation and coughed up the membrane of a hydatid cyst, about the size of an egg. All the symptoms permanently subsided. In a fatal case of pulmonary tuberculosis Corvetto found at necropsy two echinococcus cysts in one lung which had caused no reaction on the part of the parenchyma and had escaped detection during life.

96. **Meningeal Form of Suprarenal Insufficiency.**—Moreno describes a case of severe febrile and toxic gastro-intestinal disturbance in a frail little girl of 7. It proceeded to include meningeal symytoms, unequal pupils, Kernig's sign, vomiting, cephalalgia, etc., with tachycardia, low blood pressure, uncontrollable vomiting, white dermographism and extreme prostration. Moreno accepted this set of symptoms as the pseudomeningeal form of suprarenal insufficiency, and gave the child a subcutaneous injection of 1 mg. of suprarenal extract. There was no change the next day in the apparently moribund child but he repeated the injection morning and evening, and the following day marked improvement was evident and the child was soon fully convalescent. The suprarenals probably were not strong, and the toxic action from the poisonous products generated during the severe digestive upset had evidently induced acute insufficiency on the part of these glands.

97. **The Tears in Test of Actual Death.**—De Toledo has tested on 180 cadavers and 2,000 living persons Lecha Marzo's test and has found it almost invariably positive in actual death. The test is merely the change of the reaction to litmus of tears. In the living the reaction is alkaline, and it veers to acid after death. De Toledo never found the reaction acid in tears from the living. It was not always constant in the cadavers, but when found can be relied on. The tears were always alkaline in 542 males and 537 females of all ages and conditions, and also in 1,104 patients in the eye infirmary with various eye diseases. With actual death the reaction veers to acid in from half an hour to seven and a half hours. The change seems to be slower when the weather is cold.

Repertorio de Medicina y Cirugia, Bogota

February, 1918, **9**, No. 5

98 Training the Character. P. Rincon.—p. 229.
99 *Treatment of Infected Wounds. L. L. Pereira.—p. 257.

99. **Treatment of Infected Wounds.**—Pereira has been serving in the American ambulance in France and more than 3,000 wounded men have been cared for in his service. He has also worked with Carrel and Depage, and is now conducting a course of instruction for American surgeons on their way to organize hospitals at the front. The main principles taught are that local disinfection has to be more mechanical than chemical; that germs become accustomed to a disinfectant so that a change is necessary; that air usually should be allowed to reach the wound, and that in dressing a wound gloves and forceps should be used for each separate case as carefully as for an operation. Of the various methods of treatment he describes with illustrations, he commends to the general practitioner the soap method. He says it is a common practice of veterinarians in South America to apply

soap suds to the wound in cattle and horses after castration, and a surgeon in the Polish ambulance at Paris has been applying this method to war wounds. Although it cannot compare with the Carrel method, as primary suture is not practicable with the soap treatment, yet Pereira's experiences with it in 200 cases were good, and it should certainly be used when the hypochlorite method or its equivalents are not available. The wound is copiously washed out repeatedly with a 5 per cent. solution of soap in water, and the wound is covered with compresses dipped in a 20 per cent. soap solution. The soap is ordinary castile soap, *jabon de Marsella.* Fifty grams of shavings of the soap are dissolved in a liter of boiled water, stirring with a glass rod from time to time. This 5 per cent. solution in an irrigating can with rubber tube and ordinary glass cannula is used to flush the wound freely. The reaction which is regarded as pathognomonic is formation of glairy lumps. They do not seem to form on sound tissues. The aim should be to wash them all out and this may take up to 10 liters of the solution. The compresses are about 8 inches square and are dipped in the 20 per cent. soap solution and then rubbed in the hand until full of foam. This makes them porous so they will exert capillary aspiration as the wound is not drained otherwise. A layer of nonabsorbent cotton and a bandage are applied above, and the wound is dressed daily. The soap does not kill but seems to favor the pyocyaneus, and the pus is often green, but this germ is not "wicked," and develops mostly at the edges of the wound where it can be destroyed with ether, alcohol, or gasoline. He reiterates that this soap treatment should only be used when the hypochlorite method is unavailable except possibly for wounds of the face, opening into the mouth. These heal rapidly under the soap treatment. (Compare with abstracts 13 and 14 in THE JOURNAL, Jan. 12 and Feb. 23, 1918, pp. 130 and 573.)

Revista de Medicina y Cirugia, Havana

Feb. 25, 1918, **23,** No. 4

100 *Pyelotomy for Kidney Stones. J. A. Presno.—p. 89.
101 *Age and Cataract Operations. J. S. Fernandez.—p. 93.
102 *Giant Parovarian Cyst. F. Pages.—p. 105.
103 Supernumerary Muscle in Forearm. E. Stincer.—p. 110.

100. **Pyelotomy for Renal Lithiasis.**—Presno's experience with thirty-two operations for kidney stones has confirmed the advantages of pyelotomy when the calculi are in the pelvis or the branching calculi are small and readily accessible. He has done this operation in four cases. He incised the kidney proper in twenty-eight others, and in two cases removed the kidney. All the patients recovered except four among the nephrolithotomy cases: one succumbed to reflex anuria, one to hemorrhage, and two with pyonephrosis to infection.

101. **Age and Cataract Operations.**—Santos Fernandez reviews the literature on cataract operations in the very old, in connection with his own experience. He has operated on several patients over 80, and reports here a case in which the patient was over 95, approaching 96. He was in good condition for his age, and this is the main criterion as to operability.

102. **Giant Parovarian Cyst.**—The young woman's abdomen measured 90 cm. from the xiphoid appendix to the pubis, and the circumference at the umbilicus was 180 cm., nearly 6 feet. The unilocular cyst originated in the broad ligament; 46 liters of limpid fluid were evacuated.

Revista Medica Cubana, Havana

February, 1918, **29,** No. 2

104 *Bilateral Extra-Uterine Pregnancy. N. G. De Rosas.—p. 61.
105 Medical Treatment of Gallstones. F. S. Garro.—p. 63.
106 *Heredity in Vascular Disease. F. Rodriguez.—p. 71.
107 Postpartum Paresis of the Intestines. J. A. Figueras.—p. 83.

104. **Bilateral Tubal Pregnancy.**—An ovum seemed to have become embedded in both tubes simultaneously. One ruptured after a week or two, and the bilateral tubal pregnancy was thus discovered by de Rosas and successfully operated on.

106. **Heredity with Heart Disease.**—Rodriguez comments on the increase in the number of cases of cardiovascular disease in recent years in Cuba. He has been studying the heredity in such cases, and reports two families in which the grandmother died of heart disease; one daughter has mitral stenosis and the two granddaughters of 12 and 15 have each mitral stenosis. No case of tuberculosis is known in the family. He cites other instances showing a similar heredity of inferiority of the cardiovascular system. The manifestations of it may vary widely, but the members of the families die comparatively young, with different localizations of the same degenerative process. There may be no signs of evident heart disease but the heart's resisting power is below par; the subjects are inclined to hypertension and tachycardia, and respond poorly to extra effort, showing slight insufficiency. He adds that this vast field of inherited cardiac pathology has only recently been given attention.

Semana Medica, Buenos Aires

Jan. 3, 1918, **25,** No. 1

108 The Blood in Diphtheria. N. S. Loizaga and E. Troise.—p. 1.
109 *Prophylaxis of Eclampsia. M. R. Salaberry.—p. 24.
110 Hookworm in Argentina. S. E. Parodi.—p. 27.
111 *Renal Serotherapy. J. C. Berri.—p. 29.

109. **Prophylaxis of Eclampsia.**—Salaberry analyzes a number of cases of eclampsia, drawing a lesson from each, such as that eclampsia may be anticipated when there is albumin, even traces, in the urine, and even though it may disappear later. Reduction of chlorids in the urine, even without albumin, should suggest possible eclampsia, as also any tendency to edema, no matter how limited, any nervous manifestations, disturbances in the air passages or circulation, recent infectious disease or intoxication.

111. **Renal Serotherapy.**—Berri applied serum from the renal vein in treatment of a girl with congenital stenosis of the right ureter which had entailed hydronephrosis. There were periodical attacks of pain from retention of urine. Nephopexy gave only transient relief, and pyonephrosis developed and the kidney was removed. Seven days after this there was sudden and complete anuria. Even with catheterization of the left ureter only 50 c.c. of urine could be drawn. An intravenous injection was then made of 10 c.c. of serum from the renal vein of the goat. Prompt benefit followed but three days later the anuria returned. Another injection of 20 c.c. of the serum reestablished the functioning of the kidney, and it has proceeded normally since to date. Berri relates that this renal serotherapy has been applied by Bisso and Muniguria in Argentina in four cases each of uremia from various causes. The latter reported constant success from it in nephritis, the temperature, edema, serous effusions and albuminuria all showing marked progressive and durable benefit and the diuresis improving. In Berri's case the anuria was evidently from reflex inhibition, and the renal serum seemed to stimulate the functioning of the glomerular-tubular apparatus and restore practically normal conditions.

Siglo Medico, Madrid

February 12, **65,** No. 3344

112 *Pancreatitis Following Resection of Stomach. L. Urrutia.—p. 22.
113 Case of Mixed Aphasia. E. F. Sanz.—p. 23.
114 Biologic Standardizing of Digitalis. T. A. Redonnet.—p. 25.

112. **Pancreatitis after Resection of the Stomach.**—Urrutia sutured the stump of the duodenum to the head of the pancreas as there did not seem to be any other tissue available for peritonization of the stump of the duodenum after excision of the callous ulcer close to the pylorus. He followed Deaver's technic, but acute pancreatitis developed and proved fatal.

Vida Nueva, Havana

January, 1918, **10,** No. 1

115 *The War against Syphilis. R. B. Agramonte.—p. 26.
116 Roentgen Study of the Appendix. P. L. Fariñas.—p. 38.
117 *Sprue. A. G. Del Valle and O. Montoro.—p. 52.
118 Appendicitis versus Gynecologic Disease. T. Aguilera.—p. 62.

115. **The Campaign Against Syphilis.**—R. B. Agramonte's monograph was awarded the prize of $25 offered by *Vida Nueva.* Regulations for prostitutes are outlined, the educational value of registers and medical inspection being an important element in the campaign against venereal disease

The name "syphilis," he recalls, is derived from Syphilus, an imaginary personage created by Fracastorio in his poem "Morbi Gallici" (1530). He coined the term probably from the Greek *sys* "swine" or "filth" and *philo*, "love of," a name appropriate for a swineherd.

117. **Sprue.**—Fariñas confirms the publications in THE JOURNAL on the monilia as the cause of sprue, the chronic diarrhea of tropical countries. The tongue reflects the lesions of the stomach and intestines. No drug with a specific action on it is known to date. Treatment can be only symptomatic and dietetic, with repose and change of climate. Emetin gave good symptomatic results in his cases.

Grèce Médicale, Athens

October, 1917, **19**, No. 19-20

119 *Syphilitic Corneal Disease. G. F. Cosmettatos.—p. 39.

November-December, 1917, **19**, No. 21-24

120 Movements Simulating Tremor in Dementia. C. Manthos.—p. 45.
121 *Tuberculosis Mortality in Greece. P. J. Rondopoulo.—p. 47.

119. **Syphilis of the Cornea.**—Cosmettatos describes the findings with punctated keratitis of syphilitic origin, giving the details of four cases. The minute whitish infiltrations are generally found on the lower segment of the cornea, and the tissues are sound between them. The reaction to them is moderate although he has seen iritis follow in one case. The keratitis was bilateral in one of his four cases. Syphilitic ulcers of the cornea are also known, and he has encountered two cases of gumma of the cornea. This lesion shows as a round plastic deposit in the parenchyma of the cornea. It differs from ulcer by the hardness and the absence of suppuration nothwithing the inflammatory phenomena, but above all by the prompt improvement under specific treatment, while ordinary measures are of no avail. Sometimes the gumma is shaped more like a comma or tear. The pains may be quite intense, with lacrimation and photophobia, and there may be complicating iritis or conjunctivitis.

121. **Tuberculosis Mortality in Greece.**—Rondopoulo analyzes various statistics, saying that in the twenty-five years, 1890 to 1914, in the fourteen larger towns of Greece, 22,008 males died from tuberculosis and 16,526 females. The mortality from tuberculosis during the sixteen years, 1899 to 1914, was 40.8 per 10,000 inhabitants, a figure much higher than in the other large cities of Europe. The deaths from tuberculosis form one sixth of the total mortality of Greece. All professions and trades are affected, the working classes, especially factory workers, showing the highest mortality.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Feb. 2, 1918, **1**, No. 5

122 *The Inspirator in Treatment of Asthma. S. Elias.—p. 272.
123 The West-Polyak Operation for Chronic Obstruction of Lacrimal Duct. C. E. Benjamins and G. F. Rochat.—p. 284.
124 *Auditory Dilatation of Pupil. A. Van Ravenswaaij.—p. 289.

122. **Device to Passively Facilitate Respiration: the Asthma Inspirator.**—Elias says that he has been using for six years with constantly increasing satisfaction a device with which traction is exerted on the anterior wall of the chest, thus lifting up the wall passively, during each inspiration. It is designed mainly for asthma. The inspirator, as he calls it, consists of a piece of adhesive plaster with a reenforcing strip on the adhesive side. Four or five strings are attached to this reenforcing strip and are brought out through small holes in the large piece of plaster. The plaster is applied to one side of the chest, the median margin 2 or 5 cm. from the sternal line, the lower margin in the fourth interspace or below. The strings are brought upward over the shoulder and knotted together. He stands behind the patient and pulls on the strings isochronous with the respiration, exerting traction slightly toward the median line, over the top of the shoulder. There have never been any complaints of by-effects from its use except that one man developed eczema under the plaster, compelling its removal. The skin is cleaned with benzin before the plaster is applied, and the inspirator can be left undisturbed for two, four or eight weeks. A plaster inspirator can be applied to both sides of the front wall of the chest at once. The relief experienced by the patients as respiration is thus facilitated and deepened is great. Roentgenoscopy shows the downward displacement of the diaphragm, and vesicular breathing sounds become evident if they had not been audible before. After the inspiration is completed, he still exerts the traction for a moment to impede expiration. The aim is to make the patient feel that he is spontaneously breathing deeper, without noticing the traction. The benefit is pronounced during the prodromal and declining phases of the attack of asthma, as well as at its height, for reasons which he sets forth, expatiating particularly on the breaking up of a vicious circle, the reduction of the residual air, the general improvement in the ventilation of the lungs reducing the tendency to the attacks or rendering them less severe.

124. **Dilatation of the Pupil from Auditory Stimulus.**—Ravenswaaij has noticed a reflex transient dilatation of the pupil which can be utilized to detect malingerers among men claiming to be totally deaf. The man is placed in a strong light, told to look at a distant object, and then a third person, several yards distant, calls out a few words, in a loud voice, with an interval between each word. The pupils dilate at each word but return almost at once to their former size. Words of military command: "attention," "forward march," elicit more of a response as the mental impression reenforces the auditory stimulus.

Hospitalstidende, Copenhagen

Feb. 6, 1918, **61**, No. 6

125 *Tuberculous Bronchial Glands. E. Schmiegelow.—p. 161. Commenced in No. 5, p. 129.

125. **Pathology of Bronchial Glands.**—Schmiegelow remarks that modern methods have made it possible to determine whether enlarged bronchial glands are responsible for stenosis of the air passages, and also permit direct treatment. In 1902 only three cases were known of recovery after operative treatment of glands perforating into the bronchi. Sternberg reported in 1905 that he had found perforation into the bronchi in 36 of 6,132 cadavers, but anthracosis was responsible for it in 34 and tuberculosis only in 2. Reports from the Middlesex Hospital mention perforation found in 0.3 per cent. of 1,800 cadavers, while some German reports mention 3.2 per cent. in 796 cadavers. It is probable that the perforation into the air passages or the esophagus has often escaped detection during life and at necropsy. Enlarged glands may likewise be responsible for sudden suffocation, and Schmiegelow reports some cases of this kind in children, and tabulates 20 from the literature. One girl of 9 was apparently healthy until she suddenly developed cyanosis and coughed up large masses from a tuberculous gland perforating into the bronchus. This is the most dangerous form of glandular trouble on account of the lack of any warning symptoms. One child of nearly 3 was under treatment in the hospital for caustic stenosis of the esophagus when the symptoms from the perforation into the bronchus became apparent. Tracheotomy was done at once and the child recovered. He has found only one case on record of perforation of this kind in an adult, but has encountered one case himself.

The symptoms of stenosis from compression by enlarged glands are the difficulty in expiration while inspiration proceeds with comparative ease; the cough, which resembles that of whooping cough and occurs spasmodically; an area of dulness over the interscapular region; and the peculiar whistling character of the respiration, but these symptoms are not always present. One babe of 8 months succumbed to suffocation from compression of the trachea by enlarged glands, but they were simply hypertrophied with no signs of tuberculosis. Glands may be the seat of a tuberculous process without inducing symptoms, but they usually enlarge. With suppuration and perforation into a bronchus, the patient may cough up the extruded masses and recover. But if they are too voluminous to be coughed up, the child suffocates if operative measures are not applied in time. Sudden death from this cause may suggest a criminal factor. Symp-

toms of stenosis should warn of trouble. Direct bronchoscopy is indicated at once; it may prove possible to aspirate through the bronchoscope the contents of the gland that have broken through into the bronchus. When the tuberculous glands are in the anterior mediastinum, they can be reached as a rule only by removing the sternum. Dalziel reported 3 cases of this kind in 1915. In one case a suppurating gland was found close under the arch of the aorta. In 14 of the tabulated 20 cases the suffocation occurred without warning, and 9 of the patients died. One child of 5 was intubated and tracheotomized for assumed diphtheria, but he finally coughed up the tuberculous gland masses and recovered. One boy was treated with artificial respiration, and this forced the coughing up of the masses. One child only 11 weeks old had the tendency to suffocation keep up for five days, and then it coughed up a tuberculous gland. Two of the patients were men; tracheoscopy showed the trachea compressed. The outcome in these cases is not known. In 2 other men enlarged glands had perforated into both trachea and an artery, and fatal hemoptysis followed. There is no doubt that if the trouble had been differentiated earlier, more lives could have been saved by direct tracheoscopy, etc. Tracheoscopy is especially useful in cases developing gradually, as the best mode of treatment can then be determined with confidence. For children under 6, tracheotomy is indispensable for tracheoscopy, but for older children and adults the natural passages suffice.

Hygiea, Stockholm

February 15, 1918, **80,** No. 3

126 *Bronchiectasia. H. Bergstrand.—p. 97.
127 *Mechanism of Drainage of Eye. T. Frieberg.—p. 127.

126. **Bronchiectasia.**—The findings in the cadaver of a woman of 24 suggested a probable congenital origin for the bronchiectasia, possibly from fetal syphilis. Tubercle bacilli were numerous in the sputum, also fusiform bacilli and cocci in the bronchi.

127. **Drainage of the Eyes.**—Frieberg attributes a pumping action to the canaliculi for draining the eyes into the nose. This assumption supplies a basis for the modern operations on the lacrimal sac.

Norsk Magazin for Lægevidenskaben, Christiania

February, 1918, **79,** No. 2

128 Transverse Presentation: Frequency and Causes. Drejer.—p. 153.
129 *Tests of Kidneys with Hypertrophied Prostate. F. Bie.—p. 167.
130 *Diphtheria from Epidemiologic Standpoint. P. M. Holst.—p. 186.
131 *Fever with Sarcoma. C. Schiøtz.—p. 202.
132 *Hereditary Ataxia. J. Henrichs.—p. 207.

129. **Tests of Kidney Functioning with Hypertrophied Prostate.**—Bie gives the charts from twelve *prostatikers* showing the diuresis, the elimination of urea in the urine, its specific gravity, albumin content, and the findings with the phenolsulphonephthalein test of kidney functioning—all systematically recorded daily or at brief intervals. The charts all confirm Pilcher's warning that the kidneys have been suffering from the retention and that they experience a kind of shock when the retention is overcome and the urine passes off normally. All the tests showed the depressed functioning of the kidneys, reaching its height two or three days after the retention had been corrected. After this the kidneys rapidly recuperated, usually within eight days, but not until longer than this if the kidney was pathologic. The practical conclusion from his data is that prostatectomy should be done in two sittings, first relieving the retention, and then allowing the kidneys time to recuperate before proceeding to the actual prostatectomy. The data here presented supply the scientific basis for the two-step method, the advantages of which have already been demonstrated empirically.

130. **Diphtheria.**—Holst found from two to eight carriers among three groups of recruits numbering from 163 to 385 men. Others have reported recently from 2 to 9.2 per cent. in three groups of healthy schoolchildren numbering 341, 4,277 and 967. Holst also tested the antitoxin content of the blood in 100 healthy persons, and in diphtheria patients and convalescents. He tabulates the findings and analyzes local statistics. All tend to demonstrate, he says, that an epidemic of diphtheria immunizes the community. Only a few develop the disease, but large numbers become infected. They bear the infection without its giving rise to sickness or symptoms. In this respect diphtheria resembles tuberculosis. After a longer or a shorter interval, this immunity wears off and the way is opened for another diphtheria epidemic. The assumption that the immunity conferred by an epidemic of diphtheria lasts for about twenty years conforms to the epidemiologic facts recorded for diphtheria.

131. **Fever with Sarcoma.**—A woman of 25 entered the hospital on account of repeated chills and pseudo-intermittent fever for three weeks. There were also pains in one side and a transient exanthem. The fever kept up, with high peaks and numerous chills; the abdomen was tender and there were signs of bronchitis. Necropsy disclosed sarcomatosis involving the glandular system, periosteum and dura mater, left tonsil, stomach and ileum. Among Bull's twenty cases of sarcomatosis, fourteen were febrile and these were the younger patients. Only one case of metastasis was found in the six afebrile cases. Two other Norwegian cases are known, both in physicians. In one, long persisting evening temperature of 39.7 C. was explained by a retroperitoneal sarcoma. In the other, a melanotic sarcoma in the kidney had caused regularly returning chills and fever.

132. **Hereditary Ataxia.**—Henrichs reviews the literature on the subject of Friedreich's disease and reports with illustrations the case of two brothers, adults, one 11 years older than the other, both with typical hereditary ataxia. Both are feebleminded, as also one sister who shows no signs of ataxia. The other eleven children in the family are normal.

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134 *Pharmacology of Iodids. J. Buchholtz.—p. 139.
135 Dosage of Optochin. V. Scheel.—p. 150.

133. **Swine Erysipelas in Man.**—Svith has encountered six cases, all in men who had recently slaughtered a hog with swine plague. The incubation period ranged from twenty-four to thirty hours. Pain was the first symptom to attract attention, but the exanthem and the lymphangitis are the most characteristic features. The blotches grow to be about the size of a cent; they are reddish at first but change to a bluish gray. The nearest joint is liable to swell and be painful, and the disease displays a tendency to recurrence. Under serotherapy the whole subsides in a few days, while without it the disease may drag along for from two weeks to five months.

134. **Pharmacology of Iodids.**—Buchholtz has been conducting experimental research on the absorption of iodids from the digestive tract, their passage into the blood, and elimination in the urine. He found that they do not seem to be absorbed in the stomach at all. The iodid in the blood rose after each dose and soon dropped again, showing that to keep the organism under the influence of the iodid requires numerous small doses over the entire day. The elimination in the urine reaches its height in about two hours, but the length of the interval depends on the promptness with which the stomach contents are passed along. It makes a great difference whether the iodid is taken on an empty or a full stomach. On a constant diet, the iodid does not seem to modify the viscosity of the blood; conflicting statements have been based on tests without control of the diet. Buchholtz' extensive research on the influence of iodids on the heart action failed to reveal any change in the blood pressure or pulse rate even when the blood contained amounts of the iodid far beyond the therapeutic dosage. When the iodid content of the blood reached a very high figure, the heart action was depressed and the blood pressure dropped, as the blood was thus rendered hypertonic. The therapeutic action of iodids in circulatory disturbances thus has no experimental basis. Benefit from it suggests a syphilitic origin for the disturbances.